ORIGINAL TO GENERAL FILES

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

OFFICE OF DESIGN POLICY & SUPPORT
INTERDEPARTMENTAL CORRESPONDENCE

FILE P.I. #0009725 **OFFICE** Design Policy & Support

DeKalb County **DATE** September 20, 2010
I-285 @ CR 1764/ Ashford Dunwoody Rd.

FROM for Brent Story, State Design Policy Engineer

TO SEE DISTRIBUTION

SUBJECT **APPROVED CONCEPT REPORT**

Attached is the approved Concept Report for the above subject project.

Attachment

DISTRIBUTION:

Darryl VanMeter, State Innovative Program Delivery Engineer
Genetha Rice-Singleton, Program Control Adminstrator
Glenn Bowman, State Environmental Administrator
Kathy Zahul, State Traffic Engineer
Ron Wishon, State Project Review Engineer
Jeff Baker, State Utilities Engineer
Bryant Poole, District Engineer
Jonathan Walker, District Utilities Engineer
Paul Liles, State Bridge Engineer
Angela Robinson, Financial Management Administrator
Angela Alexander, State Transportation Planning Administrator
Ken Thompson, Statewide Location Bureau Chief
Michael Henry, Systems & Classification Branch Chief
Marlo Clowers, Project Manager

BOARD MEMBER - 6th Congressional District

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

PROJECT CONCEPT REPORT

Project Number:
County: DeKalb
P. I. Number: 0009725
Federal Route Number: I-285
State Route Number: SR 407

The proposed project would construct a diverging diamond interchange (also known as a double crossover diamond) at the existing overpass of Ashford Dunwoody Road at I-285 located in DeKalb County, Georgia (see Figure 2). Associated with the construction of the interchange, improvements would also be made to Ashford Dunwoody Road to accommodate the design elements that would be required for the interchange. The existing bridge across I-285 would be maintained in place.

Submitted for approval:

DATE 4/7/10 — Moreland Altobelli Associates, Inc.

DATE 4/12/10 — DeKalb County

DATE 4/15/2010 — Darryl VanMeter (Office of Innovative Program Delivery)

DATE 4/15/2010 — Mario Clowers (Project Manager)

Recommendation for approval:

DATE _____ — State Utilities Engineer

DATE _____ — Program Control Administrator

DATE 5/7/2010 — Glenn Bowman ** LKF — State Environmental Administrator

DATE 5/3/2010 — Keith Golden ** LKF — State Traffic Operations Engineer

DATE 4/21/2010 — Ron Dillon ** LKF — Project Review Engineer

DATE _____ — District Engineer

DATE 6/1/2010 — Paul Liles ** LKF — State Bridge Design Engineer (if applicable)

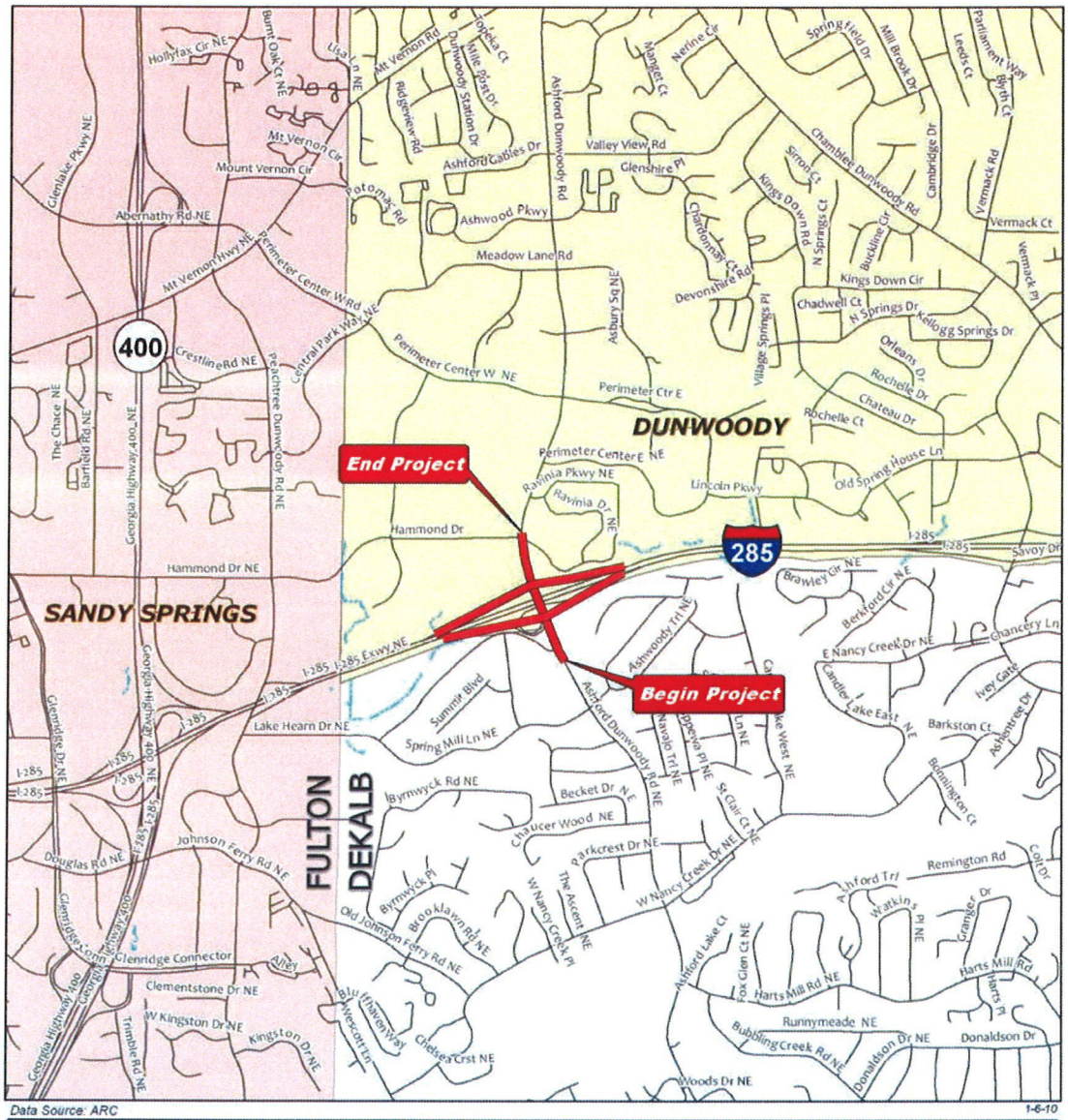
DATE _____ — State Transportation Financial Management Administrator

The concept as presented herein and submitted for approval is consistent with that which is included in the Regional Transportation Program (RTP) and/or the State Transportation Improvement Program (STIP).

DATE 5/13/2010 — Angela I. Alexander * — State Transportation Planning Administrator

** Recommendations on file. LKF

* THIS REPORT IS SIGNED WITH THE UNDERSTANDING THAT PI 0009725 IS NOT INCLUDED WITHIN THE CURRENTLY ADOPTED ARC TIP/RTP. HOWEVER, THE OFFICE OF PLANNING IS WORKING TO INCORPORATE THIS PROJECT INTO THE TIP/RTP WITH THE NEXT ARC TIP UPDATE. IN ADDITION, PLEASE SEE THE ATTACHED COMMENTS TO BE ADDRESSED WITH REGARDS TO THE "TRAFFIC ANALYSIS" SECTION. THIS APPROVAL IS PENDING THE INCORPORATION OF PI 0009725 INTO THE ARC TIP/RTP AND THE ADDRESSING OF THE ATTACHED COMMENTS.



Data Source: ARC

1-6-10

Project Location Map

Project Limits

0 1,000 2,000 4,000 Feet

Ashford Dunwoody Road @ I-285
Diverging Diamond Interchange
Dekalb County, Georgia

N

Need and Purpose:
The need for the proposed project is to provide interim relief for the severe congestion at the I-285 (SR 407) Ashford Dunwoody Road (CR 1764) interchange in DeKalb County prior to full reconstruction of the interchange area under project IMNH0-0285-01(388), PI #714000, DeKalb County. It is also intended to improve the safety of the left-turn movements onto the Interstate on-ramps. To address these needs, the project proposes an operational improvement of the existing interchange by converting the partial cloverleaf interchange to a diverging diamond interchange.

Planning Background and Project History
The I-285 (SR 407) at Ashford Dunwoody Road (CR 1764) interchange has been the subject of 20 studies since 1982. Numerous long-term redesign concepts for this interchange have been under discussion or on GDOT drawing boards for almost 15 years and are still on-going. A complete long-term redesign is included in the Regional Transportation Plan (RTP) for Metro Atlanta to 2030 and designated a high priority project providing congestion relief for the region. The projected cost is $172 million. The interchange was scheduled to receive federal funding beginning in the 2007 fiscal year for right-of-way acquisition. However, while an approved concept was developed for this project, it did not advance through environmental approval and final engineering due to funding constraints. A full reconstruction of this interchange is slated to occur by a project that is waiting on the Environmental Impact Statement (EIS) being developed by the *revive285* project, which is seeking to clear the NEPA process for the entire I-285 corridor from Cumberland Place in Cobb County to Chamblee-Tucker Road in DeKalb County. The EIS will not be complete until at least 2011. The project number for the full-reconstruction of this interchange is DK-AR-219A, PI# 714000.

The Ashford Dunwoody Diverging Diamond Interchange (DDI) project would retain the existing bridge in place. The project would reconstruct the eastbound I-285 off ramp and eliminate the existing eastbound loop on-ramp. The basic configuration of the interchange would become a standard diamond however additional construction at the Ashford Dunwoody Road/ramp termini would be needed to provide the left- and right-turn lanes which are important to a DDI. The north- and south-bound Ashford Dunwoody approaches would be slightly widened to accommodate the alignment of the DDI. The existing dedicated lane access from the eastbound I-285 off ramp to Lake Hearn Drive would be reconstructed in kind. A barrier would be constructed in the center of the bridge to provide positive protection for the opposing lanes of traffic.

Projected Traffic Volumes
The projected design year traffic volumes were developed by the project design team and are shown in the Appendix.

The 2021 Average Daily Traffic (ADT) volumes projected on Ashford Dunwoody Road across the I-285 Bridge 62,590 vehicles per day. The ADT between the northern ramp terminal and Hammond Drive is higher at 83,100 vehicles per day.

The 2021 Design Hour Volumes (DHV) showing the peak hour volumes along Ashford Dunwoody Road are shown in the Appendix. The projected heaviest hourly turning-movement volumes are the westbound to northbound ramp turning movement with a volume of 2,360

vehicles per hour in the AM peak hour. The next heaviest movement is the southbound to westbound turning movement onto the westbound on ramp. That volume is projected to be 2,050 vehicles per hour during the PM peak hour.

Difference Between No Build and Build Traffic
The fundamental concept of this project and an important factor in acquiring approval for an interchange modification is to show no adverse impact on the Interstate. When the traffic diagrams were being developed, it was recognized that the on-ramps to I-285 are saturated during peak conditions. No additional traffic is projected to be entering the interstate due to this saturation. This means that turning movements on and off the ramps, both to and from Ashford Dunwoody, are similar in all cases, build and no build.

The existing (no build) condition and the diverging diamond interchange have the same fundamental traffic turning movements volumes, they are just rerouted to the various different directions that the interchange configurations permit. This is better explained by showing that the 2021 southbound loop on-ramp AM turning volume (580 vehicles) which would be making a right turn off of Ashford Dunwoody Road instead makes a left turn under the diverging diamond interchange configuration. The destination (eastbound I-285) and volume (580 vehicles) do not change, merely the method of approaching the interstate. This theme is repeated throughout the traffic diagrams. Furthermore, outside of the immediate interchange area, all traffic volumes are identical for Ashford Dunwoody Road and the various side streets.

Future Operating Conditions
There were two primary methods of evaluating traffic conditions for the interchange modification alternatives: capacity analysis based on the Highway Capacity Manual (HCM) and CORSIM.

The HCM[1] is the industry standard for the evaluation of traffic operations. This manual provides a basis for establishing the lane configurations needed to satisfy projected travel demand. The interchange and cross-street intersections were evaluated using a descriptive measure called Level of Service (LOS). This measure evaluates an intersection's operational characteristics based on its peak hour volume, signal timing and typical section.
The HCM does not provide methodology for the analysis of a Diverging Diamond Interchange at the ramp terminal signals.[2] These signals are the critical points of analysis for comparison of the Alternatives. For evaluating and comparing these roadway points, CORSIM was used. CORSIM is a microsimulation model that uses stochastic (random) vehicle entries into the modeled network in order to evaluate as accurately as possible what experience real drivers would encounter if they were driving through the modeled network.

[1] *2000 Highway Capacity Manual, 4th Edition*
[2] The fundamental difference between a diamond interchange and a diverging diamond interchange is the treatment of left turns. This is reflected in the signal phasing of the ramp terminals. A diamond interchange has two signals operating as three-phase. A diverging diamond interchange has two signals operating as *two*-phase. The HCM does have a methodology for including opposing turns and their intersection control delay into a compiled whole without analyzing three-phase signal operation, in which case the operation of the signal will be identical to the standard diamond interchange. Other methods were called for.

The HCM and CORSIM do not provide results that can be compared under synonymous conditions. For that reason, there are duplications in the analysis presented below. The no-build condition is compared to the standard diamond at all intersections and on the freeway and freeway ramps. Likewise, the HCM is used to compare those operational characteristics of the diverging diamond interchange that are subject to analysis. This includes the freeway, the freeway ramps and the side streets with more conventional signals. CORSIM is used to provide system comparisons between the no-build, standard diamond and diverging diamond interchanges.

Basic Freeway Sections

The existing freeway section LOS analysis shows that I-285 is operating at a moderate to failing LOS (C to F) in the project vicinity. The worst LOS is F during the AM peak hour westbound approaching Ashford Dunwoody Road. In the build year, the LOS will decrease so that more LOS E will be prevalent, mainly at the AM westbound departure from Ashford Dunwoody Road and the PM eastbound approach to Ashford Dunwoody Road. By the design year the freeway levels of service will be mainly LOS E and F on all approaches during both the AM and PM peak hours. The sole exception will be the eastbound AM departure from Ashford Dunwoody Road which will remain at LOS C.

Freeway section LOS will not be affected by the any interchange modification at Ashford Dunwoody Road. These LOSs are both for Build and No-Build conditions. The ramp intersections and lane configurations at the interstate will not be altered.

Table 1: Basic Freeway Sections Level of Service

	2009				2011				2021			
	AM		PM		AM		PM		AM		PM	
I-285 EB Between:	**LOS**	**	**LOS**	**	**LOS**	**	**LOS**	**	**LOS**	**	**LOS**	**
North Peachtree Road & Ashford Dunwoody Road	C	21.0	D	33.3	C	21.6	E	35.3	C	25.6	F	*
Ashford Dunwoody Road & Peachtree Dunwoody Road	D	27.0	D	31.1	D	28.1	D	32.7	E	35.9	F	*
I-285 WB Between:												
North Peachtree Road & Ashford Dunwoody Road	F	*	D	27.3	F	*	D	28.5	F	*	E	36.7
Ashford Dunwoody Road & Peachtree Dunwoody Road	E	37.4	D	33.1	E	40.0	E	35.0	F	*	F	*

* Highway Capacity Software returns a density of "undefined" beyond 45.0. This is breakdown in the traffic stream.
** The Measure for freeways LOS is density in passenger cars per mile per lane (pc/mi/ln)
Source: Moreland Altobelli Associates, Inc.

Freeway Weaving & Ramp Merge/Diverge Analysis

By definition from the Highway Capacity Manual, a weaving segment does not exist without an auxiliary lane between two adjacent ramps. No weaving segments were analyzed on this Project.

Levels of service in merge/diverge areas are defined in terms of density in passenger cars per mile per lane (pc/mi/ln) for all cases of stable operations, LOS A through E. Level of Service F exists when the demand exceeds the capacity of upstream and downstream freeway sections or

the capacity of an off-ramp. There are several analysis conditions on this project where the ramp is LOS F due to the freeway capacity being exceeded.

The interstate ramp analysis shows that in the existing year, the Ashford Dunwoody ramps are already showing failing levels of service with LOS F westbound in the AM and eastbound in the PM. This is mainly due to the high volume of traffic on the interstate itself.

As with the basic freeway sections, there is no difference between the Build and No-Build condition for these merge/diverge analyses. No alterations of the ramps junctions with the Interstate are proposed as a part of the interchange modification.

Table 2: Ramp Merge/Diverge Level of Service

	2009				2011				2021			
	AM		PM		AM		PM		AM		PM	
I-285 Ramps at:	**LOS**	**	**LOS**	**	**LOS**	**	**LOS**	**	**LOS**	**	**LOS**	**
Eastbound Off Ramp	D	28.2	F	*	F	*	F	*	F	*	F	*
Eastbound On Ramp	C	20.5	F	*	C	23.5	F	*	C	23.7	F	*
Westbound Off Ramp	F	*	B	19.0	F	*	B	19.8	F	*	F	*
Westbound On Ramp	F	*	F	*	F	*	F	*	F	*	F	*

* Highway Capacity Software returns a density of "undefined" beyond 45.0. LOS F is also determined by the upstream Freeway capacity. If either the Ramp or the Freeway are in excess of 45 pc/mi/ln than the ramp is LOS F. This is breakdown in the traffic stream.
** The Measure for ramp LOS is density in passenger cars per mile per lane (pc/mi/ln)
Source: Moreland Altobelli Associates, Inc.

Signalized Intersections
The ramp terminals at Ashford Dunwoody Road and the signalized intersections within the project study area were analyzed using highway capacity manual methods. A traffic signal optimization software package (Synchro) was utilized to run HCM methods for signal operation analysis. The following tables list the result of these analyses.

Note that there are no results listed in the columns for eastbound and westbound ramps under the diverging diamond interchange. See the CORSIM section for a network analysis including the DDI.

Table 4 and Table 5 show that the diamond interchange configuration will have no effect on the westbound ramp terminals. This is expected as the current (existing) configuration would not be altered. The eastbound ramps would be altered from the existing loop ramp to a standard diamond and the HCM analysis shows that it would affect the ramp signal by reducing the signal LOS from C to D in the AM of 2011 and from C to F in the PM. Also, in the design year, the construction of a standard diamond configuration would reduce the LOS of the eastbound ramp terminal from C to D in the AM and from D to F in the PM.

Table 3: Signalized Intersections: No Build

No Build Analysis	2009				2011				2021			
Ashford Dunwoody Road at:	AM		PM		AM		PM		AM		PM	
Perimeter Summit Parkway	B	13.7	F	99.5	C	27.4	F	111.5	D	53.3	F	170.0
Ashford Green	A	4.0	A	8.2	A	4.8	A	9.0	B	10.1	B	19.1
Lake Hearn Drive	A	5.7	A	2.4	A	6.9	A	3.1	A	8.6	A	3.7
Eastbound I-285 Ramp	C	22.3	C	26.8	C	22.4	C	29.8	C	24.5	D	50.1
Westbound I-285 Ramps	F	118.9	D	45.6	F	121.8	D	50.0	F	134.6	F	81.6
Hammond Drive	E	57.0	F	94.0	E	58.7	F	98.9	E	65.1	F	112.5
Ravinia Parkway	B	18.6	D	38.2	B	19.6	D	39.9	C	29.2	E	60.1

Delay is in seconds per vehicle
Source: Moreland Altobelli Associates, Inc.

Table 4: Signalized Intersections: 2011

No Build / Diamond / Diverging Diamond Comparison - 2011												
	No Build				Diamond				Diverging Diamond			
Ashford Dunwoody Road at:	AM		PM		AM		PM		AM		PM	
Perimeter Summit Parkway	C	27.4	F	111.5	C	27.4	F	111.5	C	27.4	F	111.5
Ashford Green	A	4.8	A	9	A	4.8	A	9	A	4.8	A	9
Lake Hearn Drive	A	6.9	A	3.1	A	6.9	A	3.1	A	6.9	A	3.1
Eastbound I-285 Ramp	C	22.4	C	29.8	D	36.5	F	89.4	*	*	*	*
Westbound I-285 Ramp	F	121.8	D	50	F	121.8	D	50	*	*	*	*
Hammond Drive	E	58.7	F	98.9	E	58.7	F	98.9	E	58.7	F	98.9
Ravinia Parkway	B	19.6	D	39.9	B	19.6	D	39.9	B	19.6	D	39.9

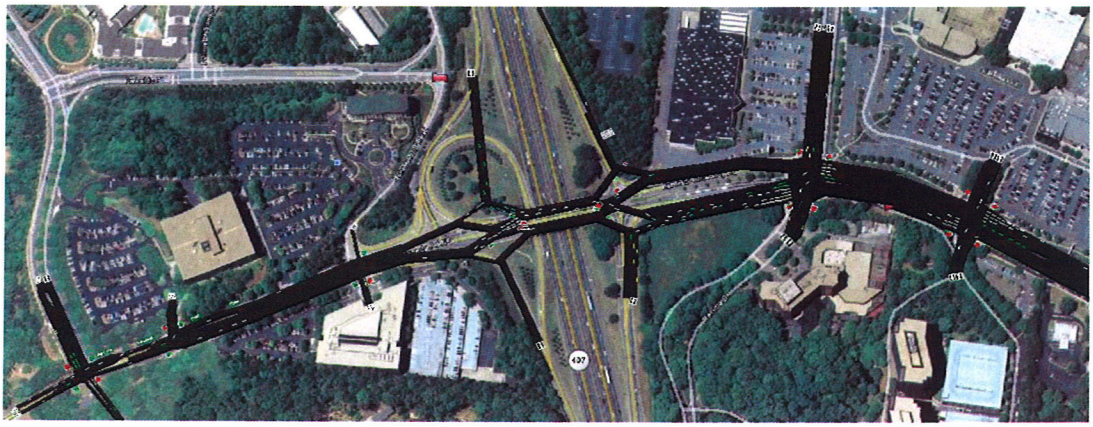
* DDI analysis not subject to HCM methodology. See CORSIM analysis.
Delay is in seconds per vehicle
Source: Moreland Altobelli Associates, Inc.

Table 5: Signalized Intersections: 2021

No Build / Diamond / Diverging Diamond Comparison - 2021												
	No Build				Diamond				Diverging Diamond			
Ashford Dunwoody Road at:	AM		PM		AM		PM		AM		PM	
Perimeter Summit Parkway	D	53.3	F	170.0	D	53.3	F	170.0	D	53.3	F	170.0
Ashford Green	B	10.1	B	19.1	B	10.1	B	19.1	B	10.1	B	19.1
Lake Hearn Drive	A	8.6	A	3.7	A	8.6	A	3.7	A	8.6	A	3.7
Eastbound I-285 Ramp	C	24.5	D	50.1	D	54.2	F	133.1	*	*	*	*
Westbound I-285 Ramps	F	134.6	F	81.6	F	134.6	F	81.6	*	*	*	*
Hammond Drive	E	65.1	F	112.5	E	65.1	F	112.5	E	65.1	F	112.5
Ravinia Parkway	C	29.2	E	60.1	C	29.2	E	60.1	C	29.2	E	60.1

* DDI analysis not subject to HCM methodology. See CORSIM analysis.
Delay is in seconds per vehicle
Source: Moreland Altobelli Associates, Inc.

CORSIM Analysis



The CORSIM microsimulation modeling software was used to compare the three analyzed interchange configurations. These were the no-build, the standard diamond and the diverging diamond. Table 6 shows the results of the CORSIM model runs. This data is delay over the entire roadway network contained within the model and is measured in seconds.

Table 6: CORSIM Network Results

No Build				Diamond				Diverging Diamond			
2011		2021		2011		2021		2011		2021	
AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
699	3,559	842	4,260	733	3,918	863	3,743	692	1,315	760	1,927

Network Delay measured in seconds
Source: Moreland Altobelli Associates, Inc.

The CORSIM results show that installing a standard diamond interchange will increase delay in the 2011 AM from 699 seconds to 733 seconds. Similarly, in the PM, the delay would increase from 3,559 seconds to 3,918. In 2021, under the standard diamond configuration, delay would increase from 842 seconds to 863 in the AM and would fall from 4,260 to 3,743 in the PM. The difference between PM 2011 and PM 2021 can be explained by a large bottleneck forming north of the Ashford Dunwoody Interchange which blocks side street traffic from entering. The majority of delay is being generated by the side streets.

Another important result of the CORSIM analysis is to show that there is no adverse impact to the Interstate mainline. To that effect an additional analysis was done on the Build and No-Build conditions to show the following:

Table 7: Interstate Network Results

		Travel Delay (veh-hours)	Delay Reduction	Ramp Queing?
2011 AM	Build	642	52%	None
	No Build	1327		Yes, Both Directions
2021 AM	Build	687	54%	None
	No Build	1489		Yes, Both Directions
2011 PM	Build	667	59%	None
	No Build	1628		None
2021 PM	Build	778	57%	None
	No Build	1825		Yes, Eastbound

Table 7 shows that there will be no adverse effect to the interstate mainline. The model predicts that the diverging diamond interchange will relieve congestion on the interstate mainline by reducing the amount of ramp queuing affecting the mainline traffic.

Safety Improvements

An inventory of available collision data over the most recent four-year period, from 2005 to 2008, is provided in Table 8. The table lists the total number of crashes and types of collision that occurred on Ashford Dunwoody Road within the project study area. The collision and injury rates for Ashford Dunwoody Road were calculated and are shown beside the statewide averages in Table 9. The collision analysis rates are in collisions or injuries per 100 million vehicle miles of travel. There were no recorded fatal collisions in the study area between 2005 and 2008. The analysis shows that Ashford Dunwoody Road has operated at higher collision and injury rates compared to the average rates for similar facilities statewide during the four-year analysis period.

Table 8: Collisions by Type

Total No: of Collisions	Types of Collision (2005 - 2008)				
	Angle	Rear-End	Head On	Sideswipe	Hit an Object
1125	17%	58%	1%	21%	3%

Source: Moreland Altobelli Associates, Inc., Georgia Department of Transportation

Table 9: Collision Rates

Ashford Dunwoody Road from Perimeter Summit Pkwy to Perimeter Center North Urban Minor Arterial (1.11 miles)						
Year	No. of Collisions	No. of Injuries	Collision Rate [1]	Statewide Average Collision Rate [1,]	Injury Rate [1,2]	Statewide Average Injury Rate [1,2]
2005	245	39	926	*534*	147	*135*
2006	261	32	1268	*531*	155	*132*
2007	279	36	1245	*514*	161	*126*
2008	340	47	1536	*471*	212	*166*

[1] *Rates are measured in collisions or injuries per 100 million vehicle miles of travel*
[2] *No fatal collisions were reported during the study period*
Source: Moreland Altobelli Associates, Inc., Georgia Department of Transportation

Ashford Dunwoody Road had 1,125 collisions from 2005 to 2007. Fifty-eight percent (58%) of the total collisions were Rear-End crashes, which are an indicator of traffic congestion. Twenty-one percent (21%) of the total collisions were Sideswipe collisions indicating insufficient spacing between the vehicles leading to improper maneuvers, such as misjudging the distance between vehicles when changing lanes or overtaking a vehicle. Seventeen percent (17%) of the total collisions were angle collisions. The other two types of collisions, namely Head-On and Hit an Object, were not a significant factor.

Table 10: Interstate Collision Rates

I-285 (SR 407) in the vicinity of Ashford Dunwoody Road Urban Principle Interstate (1.08 miles)								
Year	No. of Collisions	No. of Injuries	Collision Rate [1]	Statewide Average Collision Rate [1]	Injury Rate [1]	Statewide Average Injury Rate [1]	Fatality Rate1,[2]	Statewide Fatality Rate1,[2]
2006	350	61	354	*200*	62	*69*	1.01	0.73
2007	293	71	299	*186*	72	*43*	0	0.52
2008	273	76	286	*187*	80	*63*	0	0.56

[1] *Rates are measured in collisions or injuries per 100 million vehicle miles of travel*
[2] *Only one fatal collision was recorded during the study period*
Source: Moreland Altobelli Associates, Inc., Georgia Department of Transportation

Interstate 285 has collision rates that are in excess of the statewide average all three available[3] study years. The injury rate exceeds the statewide average in 2007 and 2008 and the fatality rate is exceeded by the one fatal collision that occurred in 2006.

Of the 916 collisions that occurred over three years in the study area, only 46 occurred at the ramp merge and diverge points. This indicates that the merge and diverge locations are operating relatively free of congestion.

Other Projects in the Area

- Project Number NHS-0001-00(758) and MSL-0003-00(534) Cobb, Fulton and DeKalb Counties. PI Nos. 0001758 and 0003534. *revive285* top end.
- Project Number IMNH0-0285-01(388), PI #714000, DeKalb County, I-285 from SR 400 to N. Shallowford Rd
- Project Number CSNHS-M002-00(967), PI #M002967, DeKalb County, I-285 from CR 1764 (Ashford Dunwoody Rd) to Chamblee Tucker
- Project Number CSSTP-0006-00(883), PI #0006883, DeKalb County, CR 4861/Hammond Drive from Ashford Dunwoody Rd to Fulton County Line
- Project Number MSL00-0004-00(831), PI #0004831, DeKalb County, Perimeter Center Streetscape from Mt. Vernon to Ashford Dunwoody - GRTA
- Project Number MSL00-0004-00(421), PI #0004414, DeKalb County, Ashford Dunwoody Road at Ashford Gables - GRTA
- Project Number CSSTP-0006-00(884), PI #0006884, DeKalb County, Johnson Ferry Rd from Fulton County Line to Ashford Dunwoody Rd
- Project Number STP00-0002-00(410), PI #0002410, DeKalb County, SR 141 from McGraw Drive/MP 3.0 to N Peachtree Rd/MP 4.8
- Project Number CM000-00TS-00(036), PI #770944, DeKalb County, ATMS/System Optimization Peachtree Industrial Blvd from Peachtree to New Peachtree
- Project Number CSSTP-0008-00(850), PI #0008850, Fulton County, Johnson Ferry/Glenridge from Abernathy-Hammond - See PI# 751420
- Project Number CSSTP-0006-00(267), PI #0006267, Fulton County, Streetscape on Medical Center from I-285 To Glenridge Connector - LCI
- Project Number CM000-0056-01(056), PI #721960, Fulton County, SR 400 ATMS/Communications/Surveillance from S of I-85 to N of I-285
- Project Number OSAP0-M003-00(416), PI #M003416, Fulton County, Fulton County SR 400 between I-85 & SR 120
- Project Number OSAP0-M003-00(417), PI #M003417, Fulton County, Fulton County SR 400 Traffic Flow Data and Incident Detection
- Project Number HPP00-7221-00(400), PI #722140, Fulton County, Northern Atlanta Sub-Area Study
- Project Number STP00-00TS-00(078), PI #870351, Fulton County, Non-Interstate Limited Access Highway Sign Upgrade - SR 400
- Project Number CSNHS-0006-00(398), PI #0006398, Fulton County, SR 400 ATMS Ramp

[3] Mainline interstate crash data was added after 2005 data became non-available. That is why 2005 data is presented for Ashford Dunwoody road but not the interstate

Meters from I-285 To SR 120/Old Milton Parkway

- Project Number MSL00-0001-00(757), PI #0001757, Fulton County, SR 400 from I-285 to McFarland Road/Forsyth County HOV Lanes
- Project Number NH000-0056-01(052), PI #721850, Fulton County, SR 400 from at Hammond/Abernathy to N of Spalding including Collector-Distributor System
- Project Number CSSTP-M003-00(833), PI #M003833, Fulton County, SR 9 From CS 327/Sardis Way to I-285
- Project Number STP00-7626-00(060), PI #762606, Fulton County, SR 9/Roswell Rd from Meadowbrook Drive to Long Island Drive
- Project Number STP00-0005-00(910), PI #0005910, Fulton County, Sidewalk on Hammond Drive & Sandy Spring Circle- LCI Project
- Project Number CSTEE-0009-00(058), PI #0009058, Fulton County, SR 9/Roswell Road from Johnson Ferry Road to Abernathy Road
- Project Number CSSTP-0006-00(728), PI #0006728, Fulton County, SR 9 from Johnson Ferry Rd to Abernathy Rd - Streetscapes
- Project Number CSSTP-0006-00(727), PI #0006727, Fulton County, SR 9/Roswell Road from Abernathy Road to Forsyth County Line
- Project Number CSSTP-M003-00(945), PI #M003945, Fulton County, SR 9 from Abernathy Road to Chattahoochee River
- Project Number STP00-9252-00(007), PI #751420, Fulton County, Johnson Ferry/Glenridge from Abernathy-Hammond/Including 1-Way Pair
- Project Number CM000-0000-00(640), PI #0000640, Fulton County, CR 210/River Valley Rd from Riverside Drive to Abernathy Rd
- Project Number STP00-9252-00(006), PI #751300, Fulton & Cobb Counties, Johnson Ferry Rd from Columns Drive to Abernathy & Bridge

Description of the proposed project:

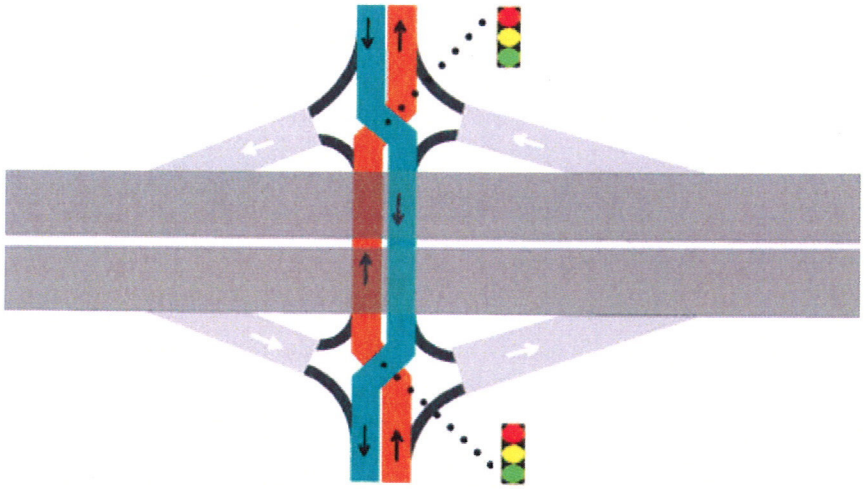
The proposed project would construct a diverging diamond interchange (also known as a double crossover diamond) at the existing overpass of Ashford Dunwoody Road at I-285 located in DeKalb County, Georgia (see Figure 2). Associated with the construction of the interchange, improvements would also be made to Ashford Dunwoody Road to accommodate the design elements that would be required for the interchange. The existing bridge across I-285 would be maintained in place. The beginning of the project is at milelog 0.77 on Ashford Dunwoody Road (CR 1764) and the end is at milelog 1.24. The total length of project is 0.47 miles.

Ashford Dunwoody Road currently consists of eight 12-foot lanes across the I-285 bridge: three northbound through and two left-turn lanes along with two southbound through and one right-turn lane to the eastbound I-285 loop on-ramp. North of the bridge, Ashford Dunwoody Road widens to seven through lanes (four northbound and three southbound) with a raised, landscaped median, with dual left turn lanes northbound at Hammond Drive and a dedicated right turn drop-lane southbound to the I-285 west on-ramp. South of the bridge, Ashford Dunwoody consists of five through lanes (three northbound and two southbound) with left and right turn bays at Lake Hearn Drive.

The proposed project would convert the existing interchange configuration from a partial cloverleaf to a diverging diamond interchange. A diverging diamond interchange is an

innovative interchange solution for locations where left-turning traffic onto the freeway on-ramps is a significant factor. The traffic on Ashford Dunwoody Road is crossed from the right side of the roadway to the left side at the ramp intersection signal and may make free left turns onto the freeway on-ramp. Traffic is then crossed back to the right side of the road at the second ramp intersection. See Figure 1.

Figure 1: Diverging Diamond Layout



The proposed project would consist of 11-foot and 12-foot travel lanes across the Ashford Dunwoody Road / I-285 bridge and would maintain the existing urban shoulder on the west side with sidewalks along Ashford Dunwoody Road or replace them in kind where necessary. The project limits would be from approximately 200' south of Lake Hearn Drive to Ravinia Parkway. The project would be constructed on variable width right of way, from 90 to 165 feet wide. The eastbound off- and on-ramps from I-285 would be reconstructed from their existing condition to a standard diamond configuration to accommodate the diverging diamond design. All work on the ramps would be tied in to the existing roadway well before the merge/diverge points with I-285. No work would take place on the interstate. The proposed interchange ramps would consist of one 16-foot lane with 4-foot paved inside shoulders and 10-foot paved outside shoulders widening to two or more 12-foot lanes at the intersection with Ashford Dunwoody Road (see Figure 6; Typical Section - Proposed I-285 Ramps). The off-ramps would include left and right turn lanes at the ramp intersections Ashford Dunwoody Road. No additional lane-width will be constructed for bicycles. Bicycles traversing the interchange on Ashford Dunwoody Road will be accommodated within the normal traffic lanes under the normal rules of the road.

Logical Termini

The logical southern terminus of the proposed project would occur at approximately 200' south of the intersection of Ashford Dunwoody Road (CR 1764) and Lake Hearn Drive (CR 1763). At this intersection, all geometric alterations necessary to convert Ashford Dunwoody Road into a diverging diamond interchange configuration would be tied into the existing alignment.

The logical northern terminus of the proposed project is at the northern intersection with Ravinia Drive, approximately 500 feet north of Hammond Drive (CR 4861). Again, this is the location where geometric alterations to Ashford Dunwoody Road would be tied to the existing roadway alignment.

Is the project located in a PM 2.5 Non-attainment area? ___X___ **Yes**_____ **No**

Is this project located in an Ozone Non-attainment area? ___X___ **Yes**_____ **No**
This project concept does not differ from the conforming plan with respect to number of through lanes.

PDP Classification: Major __X__ Minor ____

Federal Oversight: Full Oversight (X), Exempt( ), State Funded( ), or Other ( )

Functional Classification: Urban Minor Arterial / Urban Principal Arterial

U. S. Route Number(s): N/A **State Route Number(s):** SR 407

Traffic (AADT):
Base Year: (2011) 53,925 Design Year: (2021) 65,590

Existing design features:
Typical Section: Ashford Dunwoody Road consists of between 6 and 8 travel lanes with 11 foot width. Curb, gutter and sidewalk are installed throughout the project limits. The existing interchange ramps consist of one or two16-foot lanes with 6-foot paved inside shoulders and 10-foot paved outside shoulders widening to between 2 and 4 lanes measuring 12 feet wide at the intersection with Ashford Dunwoody Road.

Existing Design Features

- Posted speed:
  - Ashford Dunwoody Road – 35 mph
  - I-285 On Ramps – 55 mph
  - I-285 Off Ramps – 45 mph
- Maximum super-elevation rate for curve: 4.00%
- Maximum grade: 7.8 %
- Width of right of way: Ashford Dunwoody - 90-165 ft.
  I-285 - .350 ft
- Major structures:
  - Ashford Dunwoody Bridge across I-285

- Major interchanges or intersections along the project:
  - I-285
- Existing length of roadway segment:
  - 0.47 miles of existing roadway on Ashford Dunwoody Road
  - 0.40 miles of existing ramps
  - Beginning mile log for Ashford Dunwoody Road (CR 1764)
    DeKalb County milelog: 0.77
  - Ending mile log for Ashford Dunwoody Road (CR 1764)
    DeKalb County milelog: 1.24
  - Mile log for I-285 (SR 407)
    DeKalb County milelog begin: 0.42
    DeKalb County milelog end: 0.70

Proposed Design Features:

- Typical Section: Ashford Dunwoody Road, outside of the interchange area will consist of between 6 and 8 travel lanes with 11 foot width. Curb, gutter and sidewalk (on the west side) will be included.

  Diverging Diamond Specific Features: The width of lane along Ashford Dunwoody Road between the beginning of the diverging diamond interchange (DDI) area (prior to the first crossover and continuing to after the second crossover, see layout) will vary between 11 and 13 feet through the "ess" curves that are part of the DDI crossovers. The additional width is to provide for off-tracking room for large trucks.

  The proposed interchange ramps would consist of one 16-foot lane with 6-foot paved inside shoulders and 10-foot paved outside shoulders widening to between 2 and 4 lanes measuring 12 feet wide at the intersection with Ashford Dunwoody Road. The off-ramps would include left and right turn lanes at the ramp intersections with Ashford Dunwoody Road.

- Proposed Design Speed
  - Ashford Dunwoody Road – 35 mph
  - I-285 On Ramps – 50 mph at connection with I-285
  - I-285 On Ramps – 35 mph at connection with Ashford Dunwoody
  - I-285 Off Ramps – 50 mph at connection with I-285
  - I-285 Off Ramps – 35 mph at connection with Ashford Dunwoody
- Proposed Maximum grade Mainline 4.0 %
- Maximum grade allowable 6.0%
- Proposed Maximum grade Side Streets 4.6 %
- Maximum grade allowable 6.0%
- Proposed Maximum grade driveway n/a

- Proposed Minimum Radius
  - Ashford Dunwoody Road 1,250'
  - I-285 Ramps 1,975'

  DDI Specific Design Feature
  - Turning Movement radii for Ashford Dunwoody "ess" curves through the crossover intersections 250'

- Minimum Radius allowable
  - Ashford Dunwoody Road 715'
  - I-285 Ramps 950'

  DDI Specific Design Feature
  - Mimimum Radius of turning movement "ess" curves through the crossover intersections 250'
- Proposed Maximum superelevation rate 4.00%
- Right of way
  - Width Additional 12' at Turn Lane into Ravinia Parkway
  - Easements: Temporary (X), Permanent (X), Utility ( ), Other ( ).
  - Type of access control: Full ( ), Partial (X), By Permit ( ), Other ( ).
  - Number of parcels: 1 Number of displacements:
    - Business: 0
    - Residences: 0
    - Mobile homes: 0
    - Other: 0
- Structures:
  - Bridge over the I-285: No replacement or widening will be undertaken. Construction of a raised median will be required.
  - Retaining Walls: none
  - Culverts: None
- Major intersections and interchanges: I-285 Interchange with Ashford Dunwoody Road, Ashford Dunwoody road with Hammond Drive/Ravinia Parkway, Ashford Dunwoody Road with Lake Hearn Drive.
- ITS will consist of replacement of signal interconnect at the two Ramp Terminal signals
- Transportation Management Plan Anticipated: Yes (X) No ( ).
- Design Exceptions for controlling criteria anticipated:

	UNDETERMINED	YES	NO
HORIZONTAL ALIGNMENT:	( )	( )	(X)
ROADWAY WIDTH:	( )	( )	(X)
SHOULDER WIDTH:	( )	( )	(X)
VERTICAL GRADES:	( )	( )	(X)
CROSS SLOPES:	( )	( )	(X)
STOPPING SIGHT DISTANCE:	( )	( )	(X)
SUPERELEVATION RATES:	( )	( )	(X)
HORIZONTAL CLEARANCE:	( )	( )	(X)
SPEED DESIGN:	( )	( )	(X)
VERTICAL CLEARANCE:	( )	( )	(X)
BRIDGE WIDTH:	( )	( )	(X)
BRIDGE STRUCTURAL CAPACITY:	( )	( )	(X)

- Design Variances:
  - Approval of pedestrian access on one side only of Ashford Dunwoody Road
  - Approval of tighter curve radii along Ashford Dunwoody Mainline
- Environmental concerns:
  - None anticipated.
  - No environmental justice issues anticipated.
- Level of environmental analysis:
  - Are Time Savings Procedures appropriate? Yes (X) No ( )
  - Categorical exclusion (X)
  - Environmental Assessment/Finding of No Significant Impact (FONSI) ( ), or
  - Environmental Impact Statement (EIS) ( ).
- Utility involvements: The following is a list of utilities, and railroad companies and contact person with facilities within the project area:

UTILITY	CONTACT	TELEPHONE
Atlanta Gas Light	Bruce Broach	404 584 4149
AT&T/ BellSouth Telecommunications	Ferdinand Henderson	770-514-1480
Comcast Engineer	Oliver Brooks	770 559 2126
City of Atlanta Department of Watershed Management	Jerri Russell	404-589-2722
Georgia Power Company (Distribution)	Carlton Blue	404-535-1798
DeKalb County Water & Sewer	Roy Barnes	770-621-7243
AT&T Metro	Cliffton Purcell	770-750-7274
MCI Worldon	Dennis Rainey	770-477-1393
Department of Watershed Management Bureau of Drinking Water	Eric Glover	404-235-2085
Time Warner Cable	Jim Parson	678-526-3767
Fulton County Public Works	Abul Howlander	404-612-7537
Cox's Enterprises, Inc.	Bill Baker	404-843-5090
OSP Division, Level (3) Communications	Michael Mayes	404-394-0597
DeKalb County Transportation	Patrece Keeter	770-492-5281
Atlanta Gas Light Networks	Joshua Nelson	404-569-5601
FiberLight, LLC	Dell Miller	678-347-9271
City of Dunwoody Signals	Chuck Davis	678-327-3360
Georgia Dept. of Transportation ITS	Lee James Gordon	404-635-8061

The complete list of the utility and railroad companies, which includes addresses and additional telephone numbers, is attached to this report.

- VE Study Anticipated Yes ( ) No (X)
- Benefit/Cost Ratio 1.05

Project Cost Estimate and Funding Responsibilities:

	PE	ROW	UTILITY	CST	MITIGATION
By Whom	DeKalb	GDOT	DeKalb	GDOT	n/a
$ Amount	$1,400,000	$1,308,480	$100,000	$4,206,335	0

Project Activities Responsibilities:

- Design: DeKalb County
- Right-of-Way Acquisition: GDOT
- Right-of-Way funding (real property): GDOT
- Relocation of Utilities: DeKalb County
- Letting to contract: GDOT
- Supervision of construction: GDOT
- Providing material pits: Contractor (If required)
- Providing detours: Contractor (If required)
- Environmental Studies/Documents/Permits: DeKalb County
- Environmental Mitigation: n/a
- Maintenance: Perimeter Community Improvement Districts

Coordination

- Meeting with GDOT stakeholders to discuss alternatives: 10/29/09 (no meeting minutes)
- Meeting with *revive285* project team to discuss potential impacts and project placement in the overall plan: 10/29/09 (no meeting minutes)
- .Meeting with GDOT stakeholders, Office of Innovative Program Delivery to discuss project implementation: 11/10/09 (no meeting minutes)
- Meeting with District 7 to discuss project: 12/4/09 (no meeting minutes)
- Initial Concept Team Meeting / Concept Team Meeting: 3/24/10 Minutes attached
- P. A. R.: A Practical Alternatives Report (P.A.R.) is not expected for this project.
- FEMA, USCG, and/or TVA. - None
- Public involvement: PIOH will be held
- Other coordination to date: None
- Railroads: None
- Draft Public Involvement Plan - See attached

Scheduling – Responsible Parties' Estimate

- Time to complete the environmental process: 5 Months.
- Time to complete preliminary construction plans: 2 Months.
- Time to complete right-of-way plans: 1 Months.
- Time to complete final construction plans: 1 Months.
- Time to complete to purchase right-of-way: 12 Months.

Other alternates considered:

No-Build Alternative

The no-build alternative is an alternative in which DeKalb County would take no action to construct the project. Traffic congestion and operational problems would continue at their current increasing levels

Full Reconstruction

Project DK-AR-219A, PI 714000 is a long-range project that is intended to fully reconstruct the I-285 (SR 407) / Ashford Dunwoody Road (CR 1764) interchange with the inclusion of a

collector-distributor system of ramps beginning at SR 400 and extending to North Peachtree Road. The current cost estimate for this concept is $170,000,000. The project is awaiting environmental clearance under the *revive285* Environmental Impact Statement which is not scheduled for completion before 2011. DK-AR-219A would not meet the need and purpose by not being immediately constructible.

Diamond Interchange:
A standard diamond interchange was analyzed as a part of the operations, safety and benefit/cost analysis. Under a standard diamond build condition, network delay goes up, safety benefits are not realized and the benefit/cost ratio is 0.21. A diamond configuration does not meet the need and purpose.

Comments: None.

Attachments:

1. Detailed Cost Estimates:
   a. Construction including Contingencies, Engineering and Inspection.
   b. Right-of-Way.
   c. Utilities.
2. Sketch location map. (included on page 2)
3. Typical sections.
4. Accident summaries. (included on pages 8-9)
5. Traffic diagrams
6. Traffic Analysis Report
7. Bridge inventory
8. Minutes of Concept meetings.
9. Conforming plan's network schematics showing thru lanes. (Note: This attachment is required for non-attainment areas only)
10. Utility Lists
11. Benefit Cost Analysis.
12. Completed Fuel/Asphalt price adjustment form.
13. Justification of 10 Year Design Life

Concur: _____
Director of Engineering

Approve: _____ *
Division Administrator, FHWA

Approve: _____ Date: 9/15/2010
Chief Engineer

* SEE FHWA LETTER OF SEPT 7, 2010 (Attachment 14)

ITEMIZED PROJECT COSTS

Diverging Diamond Interchange (DDI)
Ashford Dunwoody Road Improvements at I-285, PI 0009725
February 22, 2010

A.	Right of Way					**$1,308,480**
B.	Reimbursable Utilities					
	1	General Utility Relocation		MILE@	$100,000.00	$0
	2	Transmission Tower Relocation		EA@	$200,000.00	$0
					Subtotal	**$0**
C.	Bridges / Major Structures					
	1	Modifications to Ashford Dunwoody Bridge over I-285	7,200	SF@	$50.00	$360,000
					Subtotal	**$0**
D.	Walls					
	1	Wall No. 1 - Type P2 Parapet Retaining Wall *(Ashford Dunwoody Rd. Lt. b/w I-285 WB Ramp & Hammond Dr.)*	250	LF@	$600.00	$150,000
	2	Wall No. 2 - Type P2 Parapet Retaining Wall *(Ashford Dunwwoody Rd. Rt. b/w Ravinia Dr. & Ravinia Pkwy)*	125	LF@	$600.00	$75,000
					Subtotal	**$225,000**
E.	Base & Paving					
	1	Recycled Asph Conc 12.5 mm Superpave, GP 2 Only, Incl Poly-Mod Bitum Matl & H Lime	2,798	TON@	$64.13	$179,436
	2	Recycled Asph Conc 19 mm Superpave, GP 1 or 2, Incl Bitum Matl & H Lime	4,557	TON@	$67.77	$308,828
	3	Recycled Asph Conc 25 mm Superpave, GP 1 or 2, Incl Bitum Matl & H Lime	1,914	TON@	$59.47	$113,826
	5	Gr Aggr Base Crs, 12 Inch, Incl Matl	5,796	TON@	$22.88	$132,612
	6	Bitum Tack Coat	4,721	GAL@	$2.00	$9,442
					Subtotal	**$744,144**
F.	Roadway Items					
	1	Curb & Gutter, 8"x30" Type 2	7,234	LF@	$14.96	$108,221
	2	Header Curb, 6" Type 2	0	LF@	$12.57	$0
	3	Concrete Sidewalk, 4" Thick	1,240	SY@	$30.72	$38,093
	4	Concrete Median, 6" Thick	4,622	SY@	$55.09	$254,626
	5	Conc Side Barrier, Type 7-RS	125	LF@	$105.00	$13,125
	6	6-ft Landscaping Area b/w Curb & Sidewalk	1,422	SY@	$55.09	$78,338
	7	Misc. Landscaping	1	LS@	$290,000.00	$290,000
	8	Pavement Removal	6,447	SY@	$4.00	$25,788
					Subtotal	**$808,191**
G.	Traffic Signals, Signing, & Marking					
	1	Traffic Signals	4	EA@	$150,000.00	$600,000
	2	Reset Strain Pole/Mast Arm	2	EA@	$10,000.00	$20,000
	3	Remove Strain Pole/Mast Arm	8	EA@	$4,000.00	$32,000
	4	Strain Pole	4	EA@	$8,000.00	$32,000
	5	Overhead Signs	6	EA@	$100,000.00	$600,000
	6	Signing	1	LS@	$60,000.00	$60,000
	7	Marking	4	LM@	$3,000.00	$12,000
					Subtotal	**$1,344,000**
H.	Erosion Control		1	LS@	$511,000.00	$511,000
					Subtotal	**$511,000**
I.	Traffic Control & Mobilization		1	LS@	$290,000.00	$290,000
					Subtotal	**$290,000**
J.	Lighting					
	1	Lighting	1	LS@	$210,000.00	$210,000
					Subtotal	**$210,000**
J.	Miscellaneous Items					
	1	Engineer's Field Office	1	EA@	$74,000.00	$74,000
					Subtotal	**$74,000**
Construction Subtotal						**$4,206,335**
Project Subtotal (R/W + Construction)						**$5,514,815**
20% Contingency						**$1,102,963**
Total Project Cost						**$6,617,778**

Concept Right of Way Cost Estimate

Date: February 23, 2010
Project: DPCID-001 **P.I. Number** 0009725
Existing/Required R/W: **No. Parcels** 2
Project Description: Ashford Dunwoody Road Improvements at I-285 Diamond Interchange

Right of Way								
Heavy Commerial								
	4,131	sf	@ $	45.00 /sf =	$	185,895		
Light Commercial								
	5,840	sf	@ $	35.00 /sf =	$	204,400		
Premium Residential								
		sf	@ $	12.00 /sf =	$	0		
Average Residential								
		sf	@ $	3.00 /sf =	$	0		
Large Residential tracts								
		sf	@ $	3.00 /sf =	$	0		
							$	390,295
Permanent Construction Easement:								
Heavy Commerial								
	3,380	sf	@ $	22.50 /sf =	$	76,050		
Light Commercial								
	3,501	sf	@ $	17.50 /sf =	$	61,268		
Premium Residential								
		sf	@ $	6.00 /sf =	$	0		
Average Residential								
		sf	@ $	1.50 /sf =	$	0		
Large Residential tracts								
		sf	@ $	1.50 /sf =	$	0		
							$	137,318
Improvements:								
Residential				=	$			
Commercial				=	$			
							$	0
Relocation:								
Residential				=	$			
Commercial				=	$			
							$	0
Damages:								
Proximity -	Parcels				$	0		
Consequential -	Parcels				$	0		
Cost To Cure -	1 Parcels				$	0		
							$	0
								$ 527,613

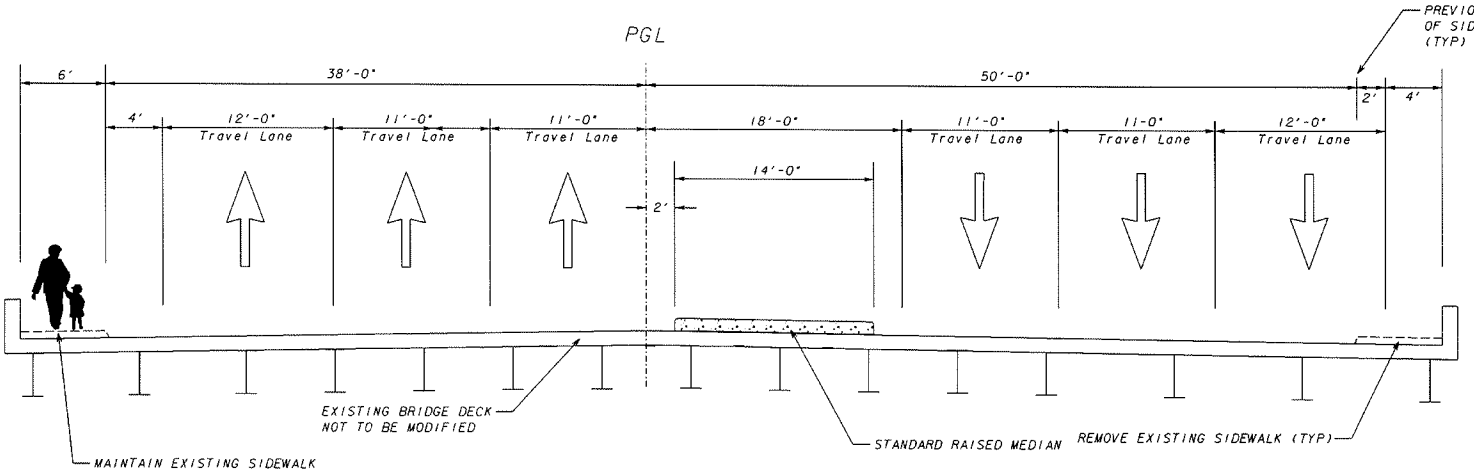
Net Cost		$	527,613
Scheduling Contingency	55%	$	290,187
Adm/Court Cost	60%	$	490,680
		$	1,308,480

Total Cost $ 1,308,000

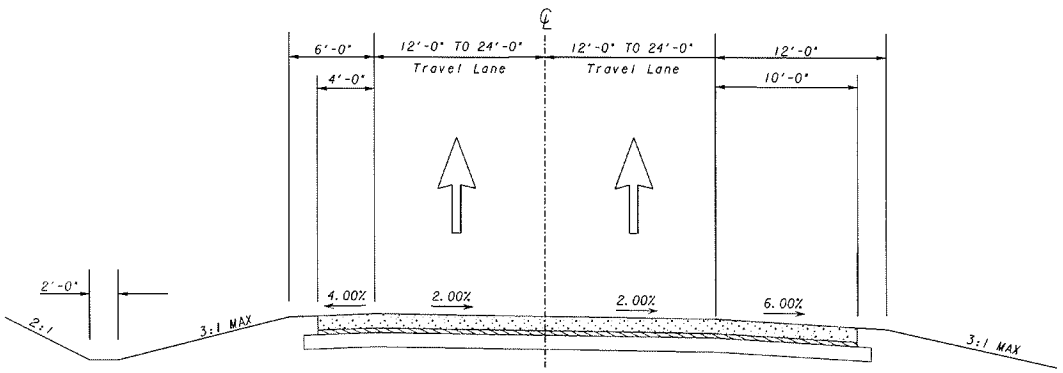
Prepared By : _____
Moreland Altobelli Associates, Inc.

Approved : _____
GDOT R/W

PROJECT NUMBER	SHEET NO.	TOTAL SHEETS



ASHFORD DUNWOODY BRIDGE TYPICAL SECTION

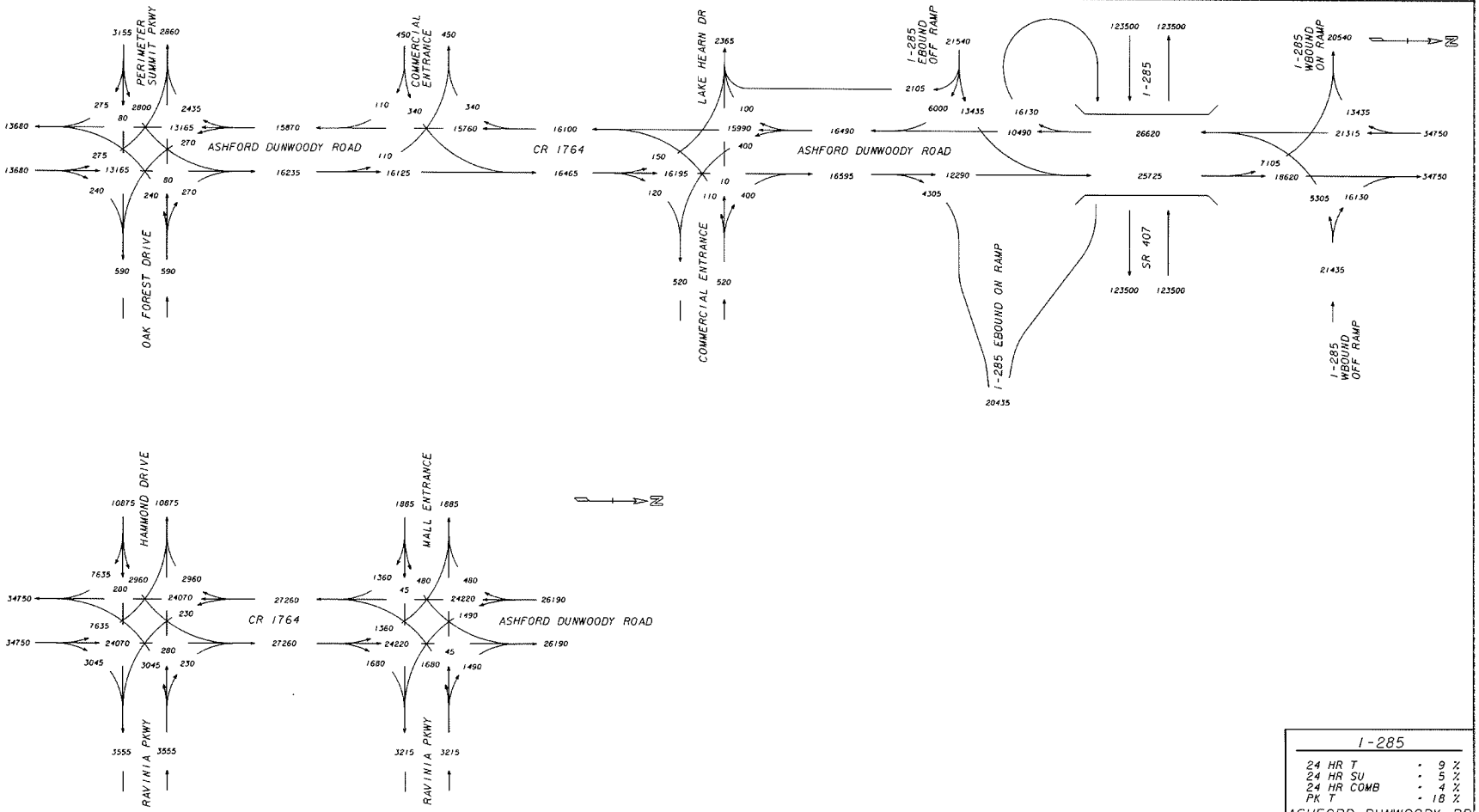


RAMP TYPICAL SECTION

NOTE: SOME SECTIONS OF RAMPS B, C, & D WILL CONSIST OF MILL AND OVERLAY ONLY

		Maryland Algobelli Associates, Inc.	NOT TO SCALE	REVISION DATES	STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION OFFICE: **TYPICAL SECTIONS** DRAWING No. 5-

STATE	PROJECT NUMBER	SHEET NO	TOTAL SHEETS
GA			



2009 EXISTING ADT

I-285	
24 HR T	- 9 %
24 HR SU	- 5 %
24 HR COMB	- 4 %
PK T	- 18 %
ASHFORD-DUNWOODY RD	
24 HR T	- 3 %
24 HR SU	- 2 %
24 HR COMB	- 1 %
PK T	- 1 %

REVISION DATES

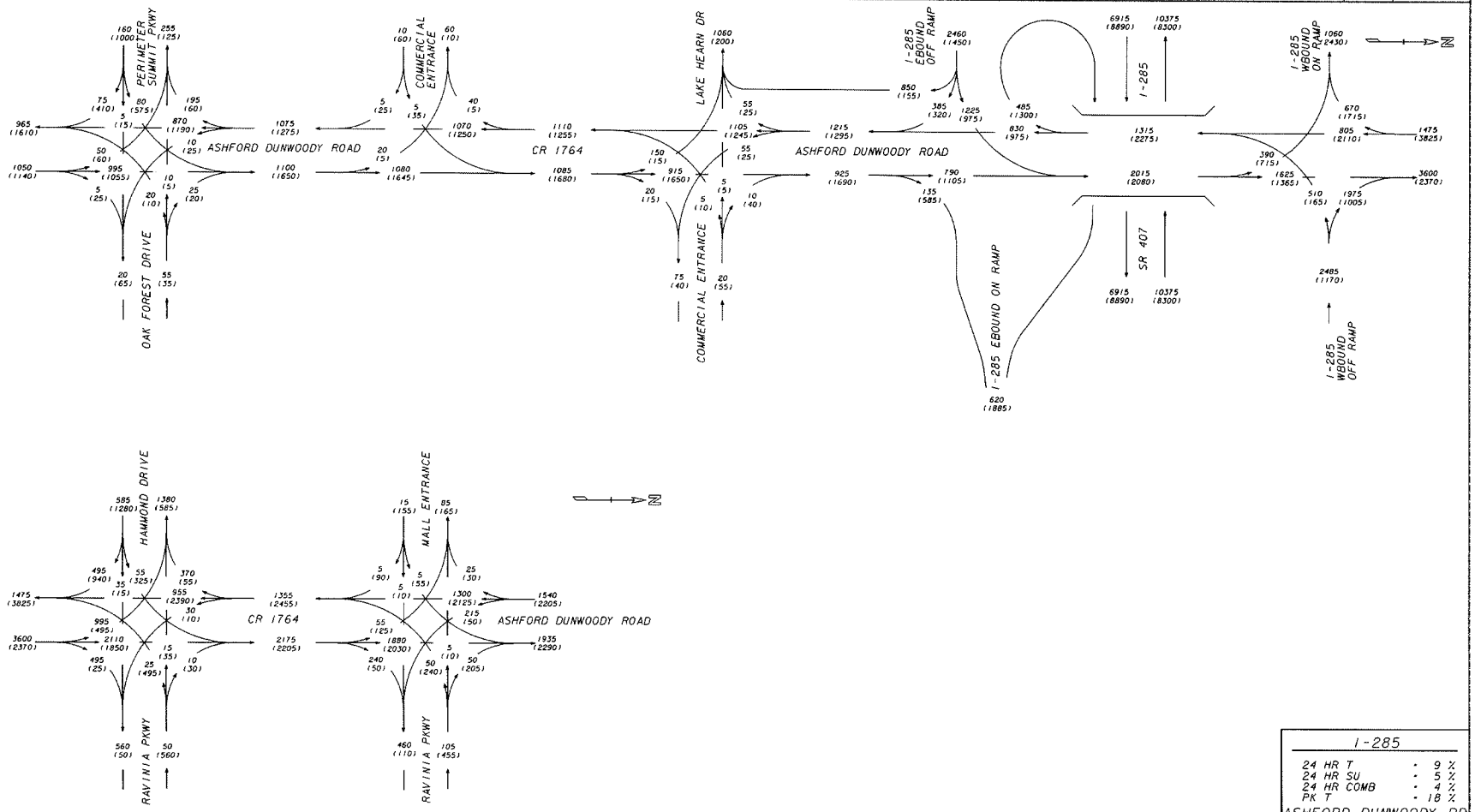
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PROGRAM DELIVERY

TRAFFIC DIAGRAM

I-285 AT ASHFORD DUNWOODY ROAD INTERCHANGE

10-01

STATE	PROJECT NUMBER	SHEET NO	TOTAL SHEETS
GA			



2009 EXISTING DHV

000 AM
(000) PM

I-285	
24 HR T	9 %
24 HR SU	5 %
24 HR COMB	4 %
PK T	18 %
ASHFORD-DUNWOODY RD	
24 HR T	3 %
24 HR SU	2 %
24 HR COMB	1 %
PK T	1 %

REVISION DATES

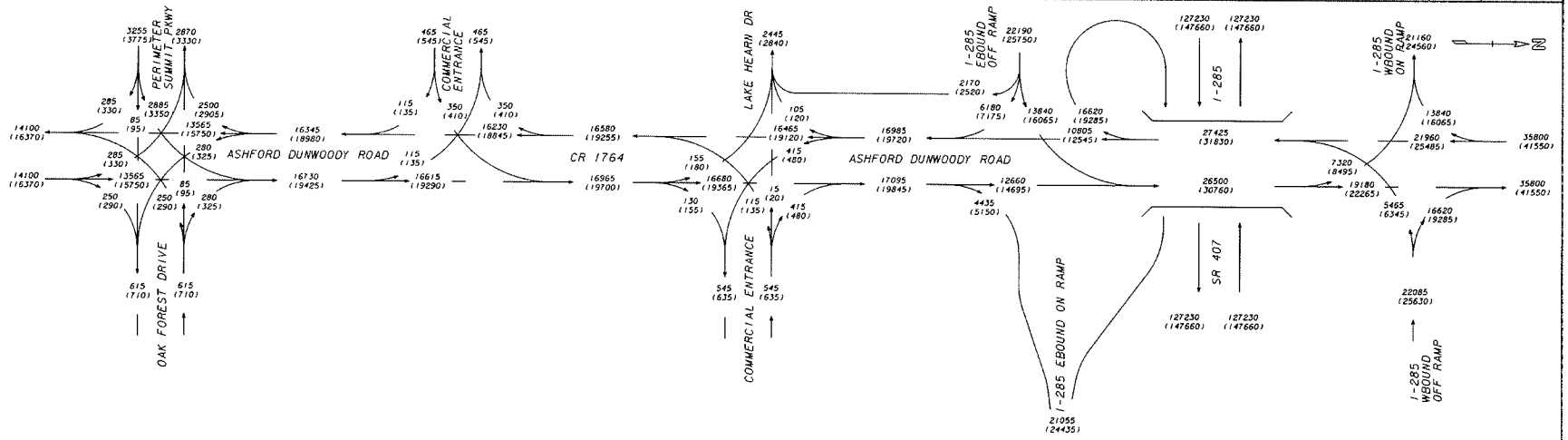
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PROGRAM DELIVERY

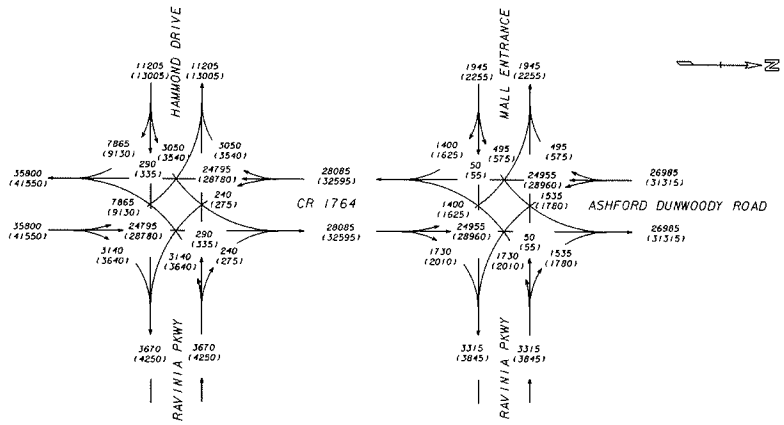
TRAFFIC DIAGRAM

I-285 AT ASHFORD DUNWOODY ROAD INTERCHANGE

SHEET NO. 10-02

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA			





2011/2021 NO-BUILD ADT

000 2011 ADT
(000) 2021 ADT

I-285	
24 HR T	- 9 %
24 HR SU	- 5 %
24 HR COMB	- 4 %
PK T	- 18 %

ASHFORD-DUNWOODY RD	
24 HR T	- 3 %
24 HR SU	- 2 %
24 HR COMB	- 1 %
PK T	- 1 %

REVISION DATES

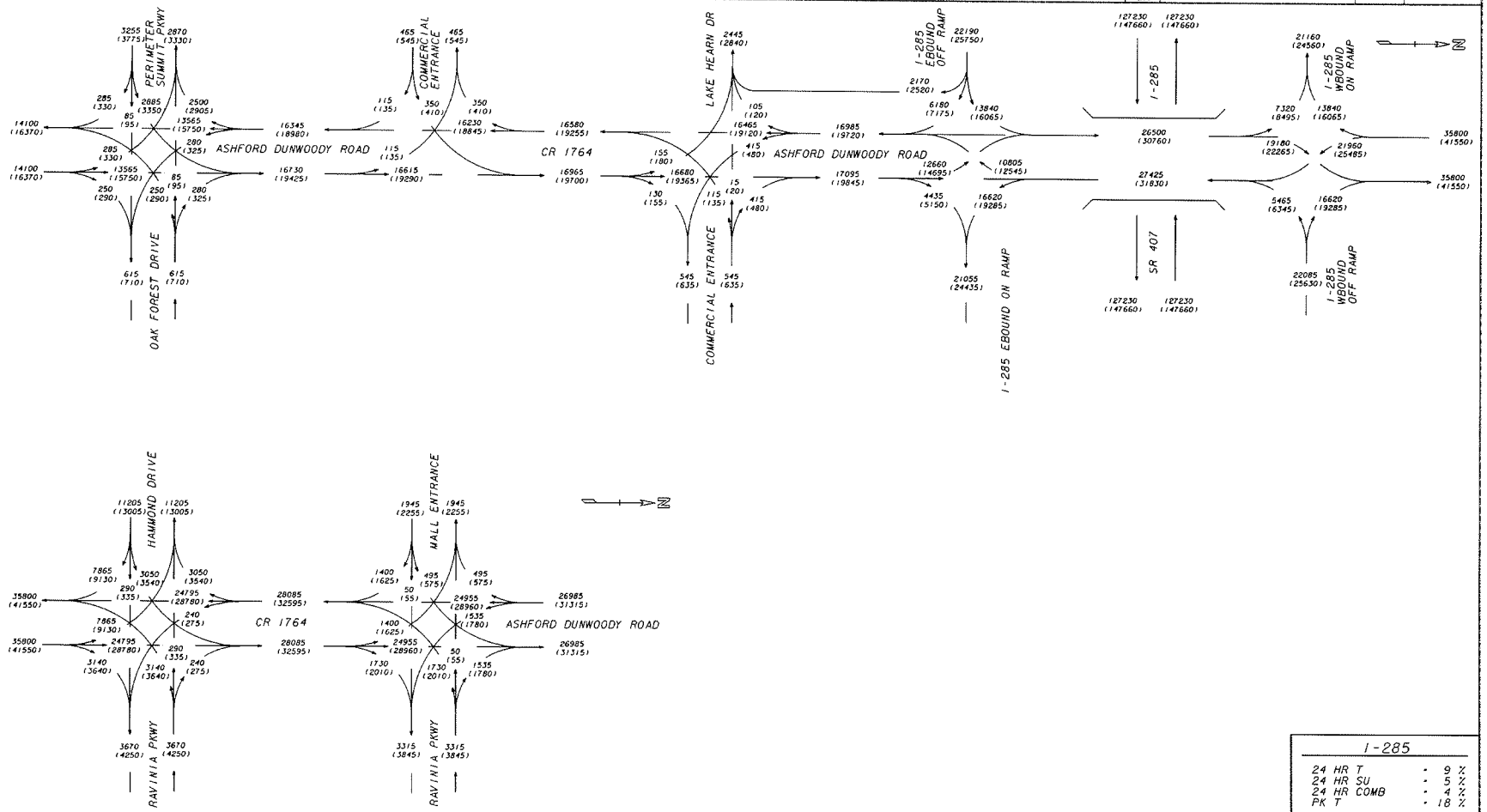
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PROGRAM DELIVERY

TRAFFIC DIAGRAM

I-285 AT ASHFORD DUNWOODY ROAD INTERCHANGE

SHEET NO. 10-03

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA			



2011/2021 BUILD ADT

000 2011 ADT
(000) 2021 ADT

I-285	
24 HR T	- 9 %
24 HR SU	- 5 %
24 HR COMB	- 4 %
PK T	- 18 %
ASHFORD-DUNWOODY RD	
24 HR T	- 3 %
24 HR SU	- 2 %
24 HR COMB	- 1 %
PK T	- 1 %

REVISION DATES

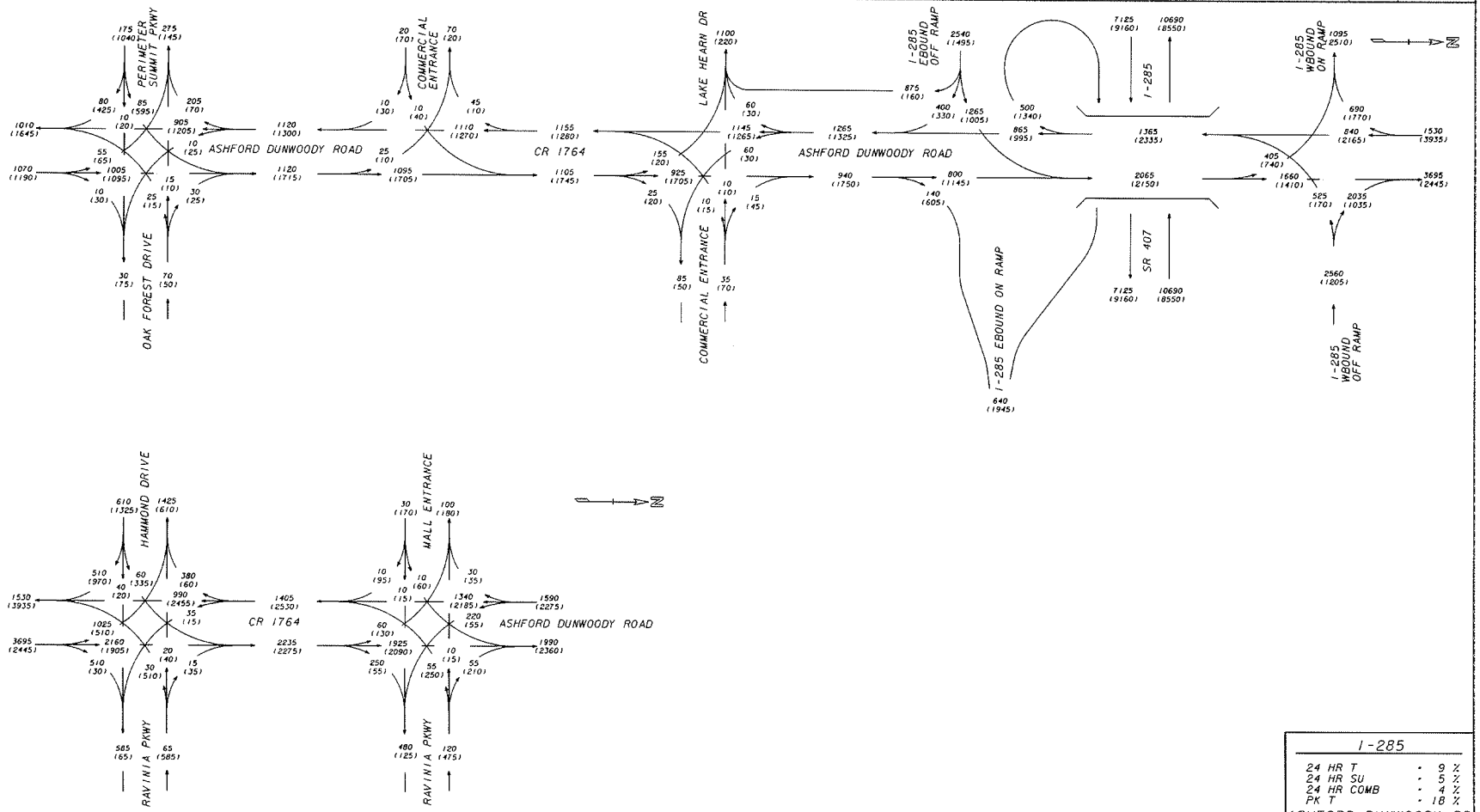
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PROGRAM DELIVERY

TRAFFIC DIAGRAM

I-285 AT ASHFORD DUNWOODY ROAD INTERCHANGE

10-04

STATE	PROJECT NUMBER	SHEET NO	TOTAL SHEETS
GA			



2011 NO-BUILD DHV

000 AM
(000) PM

I-285	
24 HR T	- 9 %
24 HR SU	- 5 %
24 HR COMB	- 4 %
PK T	- 18 %
ASHFORD-DUNWOODY RD	
24 HR T	- 3 %
24 HR SU	- 2 %
24 HR COMB	- 1 %
PK T	- 1 %

REVISION DATES

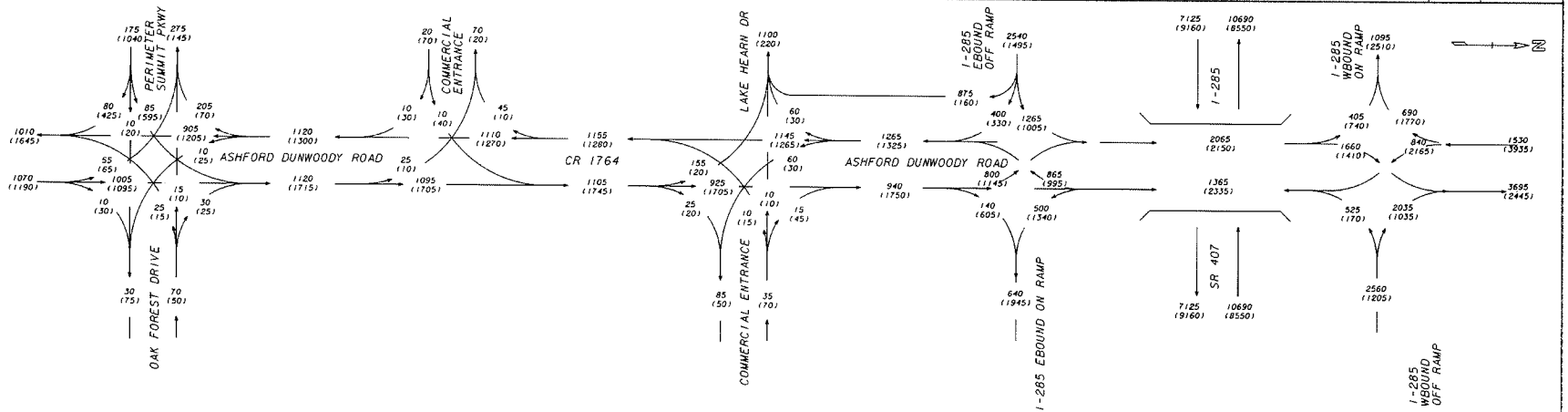
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PROGRAM DELIVERY

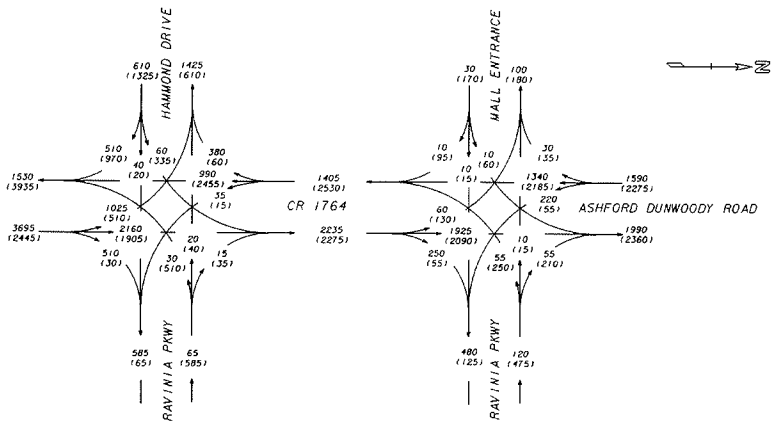
TRAFFIC DIAGRAM

I-285 AT ASHFORD DUNWOODY ROAD INTERCHANGE

10-05

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA			





2011 BUILD DHV

000 AM
(000) PM

I-285	
24 HR T	- 9 %
24 HR SU	- 5 %
24 HR COMB	- 4 %
PK T	- 18 %
ASHFORD-DUNWOODY RD	
24 HR T	- 3 %
24 HR SU	- 2 %
24 HR COMB	- 1 %
PK T	- 1 %

REVISION DATES

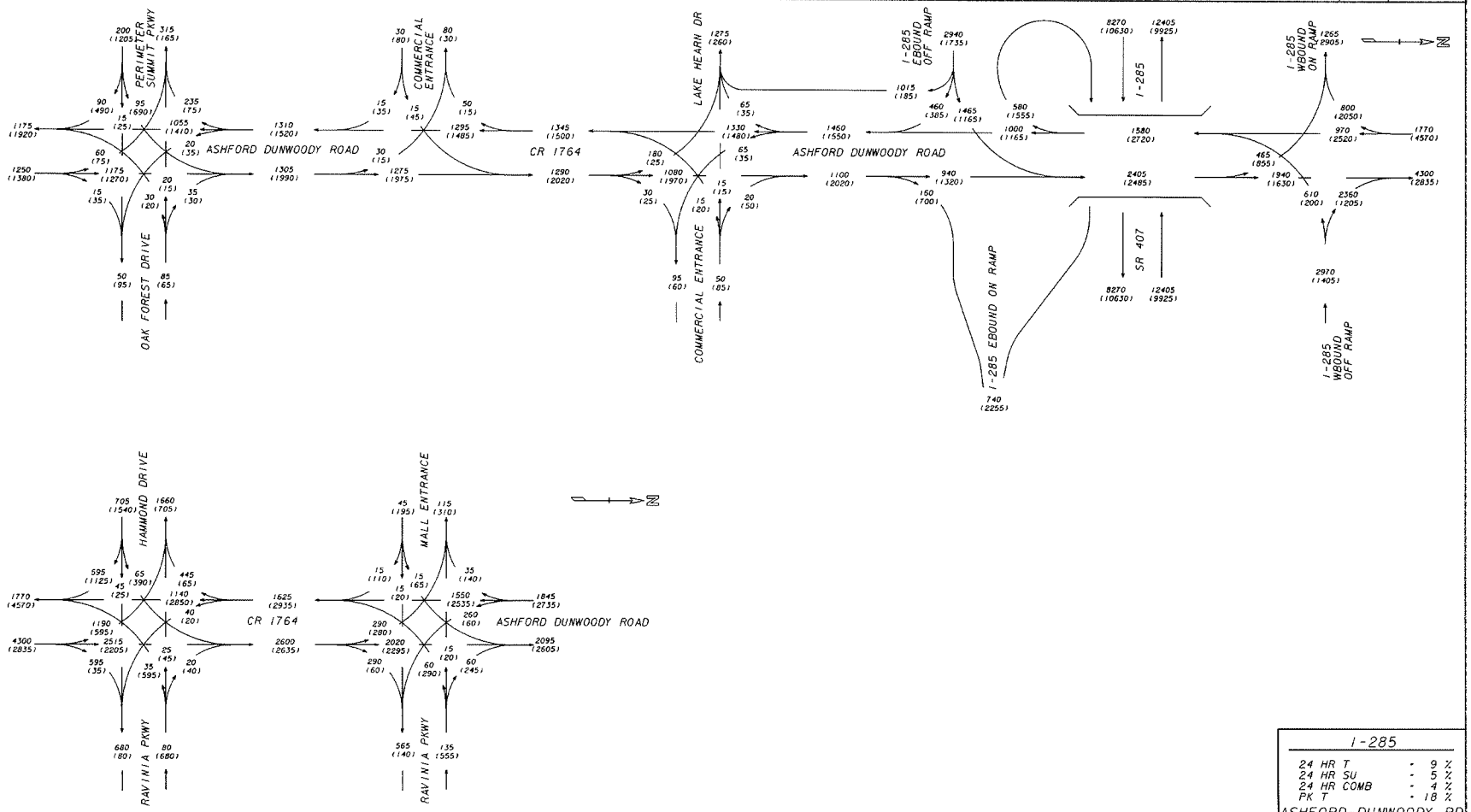
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PROGRAM DELIVERY

TRAFFIC DIAGRAM

I-285 AT ASHFORD DUNWOODY ROAD INTERCHANGE

10-06

STATE	PROJECT NUMBER	SHEET NO	TOTAL SHEETS
GA			



2021 NO-BUILD DHV

000 AM
(000) PM

I-285	
24 HR T	- 9 %
24 HR SU	- 5 %
24 HR COMB	- 4 %
PK T	- 18 %
ASHFORD-DUNWOODY RD	
24 HR T	- 3 %
24 HR SU	- 2 %
24 HR COMB	- 1 %
PK T	- 1 %

REVISION DATES

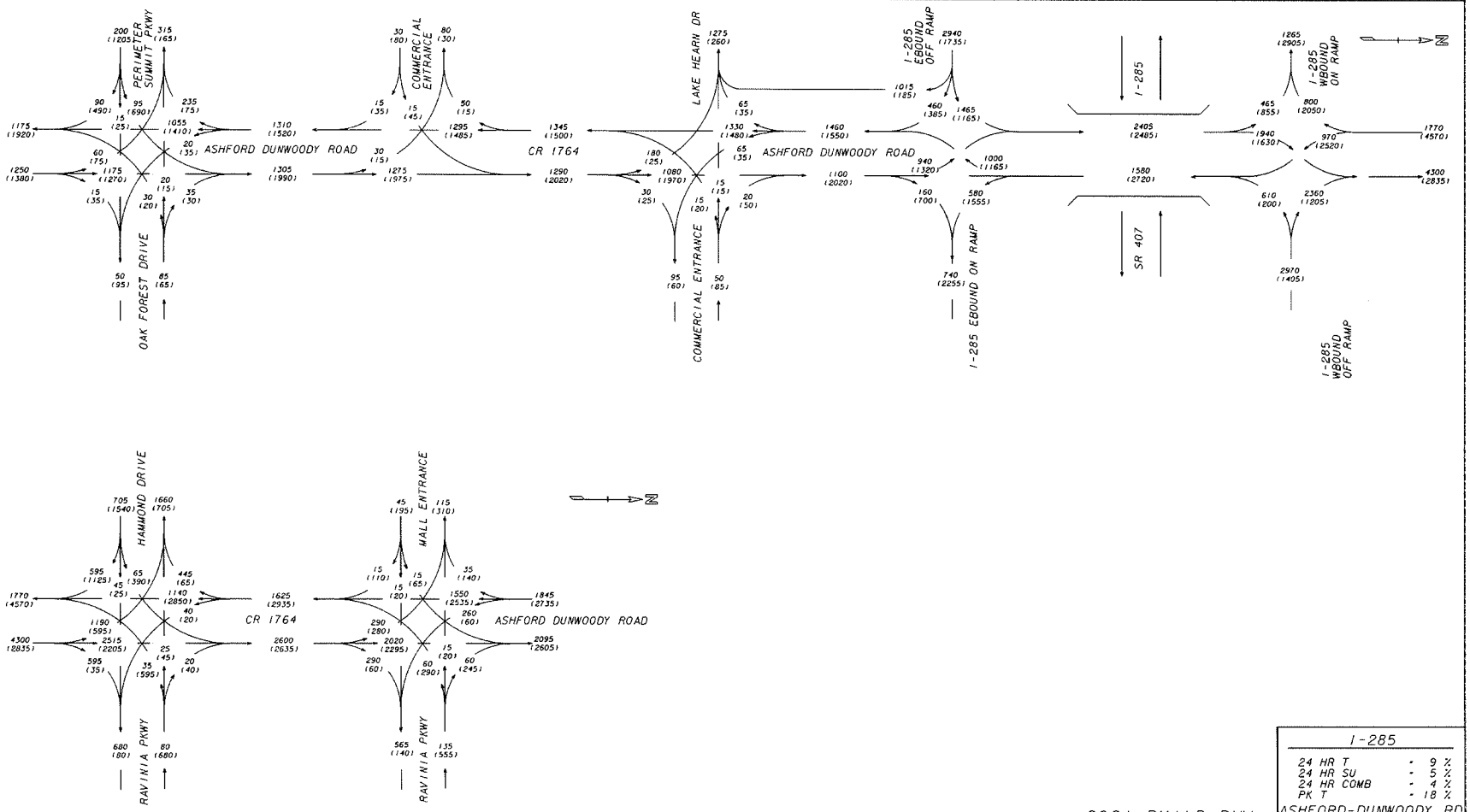
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PROGRAM DELIVERY

TRAFFIC DIAGRAM

I-285 AT ASHFORD DUNWOODY ROAD INTERCHANGE

10-07

STATE	PROJECT NUMBER	SHEET NO	TOTAL SHEETS
GA			



2021 BUILD DHV

000 AM
(000) PM

I-285	
24 HR T	- 9 %
24 HR SU	- 5 %
24 HR COMB	- 4 %
PK T	- 18 %
ASHFORD-DUNWOODY RD	
24 HR T	- 3 %
24 HR SU	- 2 %
24 HR COMB	- 1 %
PK T	- 1 %

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PROGRAM DELIVERY

TRAFFIC DIAGRAM

I-285 AT ASHFORD DUNWOODY ROAD INTERCHANGE

10-08

TRAFFIC ANALYSIS

FOR

INTERSTATE 285 & ASHFORD DUNWOODY ROAD

Project Number:
DeKalb County
P.I. No. 0009725

PREPARED FOR:
GEORGIA DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

Prepared By:
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APRIL 7, 2010

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EXECUTIVE SUMMARY

The I-285 and Ashford Dunwoody Road interchange is a highly congested bottleneck for travelers, commuters and shoppers accessing the area between Chamblee, Georgia and Dunwoody, Georgia. This interchange traffic analysis report analyzes two construction alternatives and the no-build alternative to determine if a modification is justified or necessary.

Need and Purpose

Quoting from the Project concept report:

> The need for the proposed project is to provide interim relief for the severe congestion at the I-285 (SR 407) Ashford Dunwoody Road (CR 1764) interchange in DeKalb County prior to full reconstruction of the interchange area under project IMNH0-0285-01(388), PI #714000, DeKalb County. It is also intended to improve the safety of the left-turn movements onto the Interstate on-ramps. To address these needs, the project proposes an operational improvement of the existing interchange by converting the partial cloverleaf interchange to a diverging diamond interchange.

Alternatives under Consideration

The no-build alternative is used as the base case for comparison to the two construction alternatives. The two construction alternatives under consideration are a standard diamond and a diverging diamond

Standard Diamond: this modification would consist of removing the existing loop ramp in the south west quadrant of the interchange and replacing it with a standard diamond off-ramp. This modification would require widening or replacing the Ashford Dunwoody Road bridge to accommodate southbound left turn lanes.

Diverging Diamond: diverging diamond interchanges are a new concept in the United States. The concept is to cross arterial traffic from the right side of the road to the left at the ramp terminal and allow for unobstructed left-turns onto the interstate on-ramps. The traffic is crossed back over from the left side to the normal right side at the second ramp terminal. The diverging diamond would keep the existing bridge and make modifications to the ramp terminals. It would also remove the existing loop ramp and replace it with a direct off-ramp similar to a standard diamond.

Coordination with Planned Area Improvements

All planned projects listed in the Atlanta Regional Commission's TIP are considered for their possible impact on the interchange modification or vice versa. Only one project, DK-305, PI 0004413, at Ashford Dunwoody Road and Lake Hearn Drive will be affected. Close coordination of likely impacts has already taken place.

Access Conditions and Analysis

There are two primary methods of evaluating traffic conditions for the interchange modification alternatives: capacity analysis based on the Highway Capacity Manual (HCM) and CORSIM.

The HCM is the industry standard for the evaluation of traffic operations. The HCM does not provide methodology for the analysis of a Diverging Diamond Interchange at the ramp terminal signals. These signals are the critical points of analysis for comparison of the Alternatives. For evaluating and comparing these roadway points, CORSIM was used. CORSIM is a microsimulation model that uses stochastic (random) vehicle entries into the modeled network in order to evaluate as accurately as possible what experience real drivers would encounter if they were driving through the modeled network.

As shown in Table 7 through Table 10, the delay benefits associated with a standard diamond do not justify its construction. Delay goes up under a standard diamond configuration. Table 10 shows that construction of a diverging diamond interchange would reduce network delays in the studied area.

Safety is a critical part of the need and purpose. Table 2 and Table 3 show the types and rates of collisions in the project area. A standard diamond configuration would do little to address the need to reduce collisions. A diverging diamond would eliminate left-turn angle collisions and also reduce rear-end collisions by reducing congestion.

Financial Analysis

Benefit cost (B/C) analysis of the two construction alternatives show a B/C ratio of 0.21 for the standard diamond and 1.06 for a diverging diamond. A ratio of 1.0 or greater is considered justification for project construction. Table 12 and Table 13 show the project cost estimates and benefit/cost breakdowns.

Environmental Process

This project is anticipated to fall under a Categorical Exclusion (CE). All environmental field work has been completed. No adverse impacts to any ecological, historical, archaeological, 4f or other resource is anticipated.

Conclusion

It is the conclusion of this document that the proposed diverging diamond interchange modification best meets the need and purpose of the project. The diverging diamond interchange modification request should be approved for the I-285 at Ashford Dunwoody Road interchange.

INTRODUCTION

The following report documents a request for modification of access for the I-285 (SR 407) / Ashford Dunwoody Road interchange within Dekalb County, Georgia, hereinafter referred to as the project. Pending the Georgia Department of Transportation's (GDOT) approval, this report will be submitted to the Federal Highway Administration (FHWA) for their review and consent.

This report provides analysis of the build year (2011) and future design year (2021) traffic and operational characteristics of the project area roadway network, including I-285 (SR 407), Ashford Dunwoody Road (CR 1764) and its side streets. GDOT has identified the operational improvement of this interchange as P.I. No. 0009725.

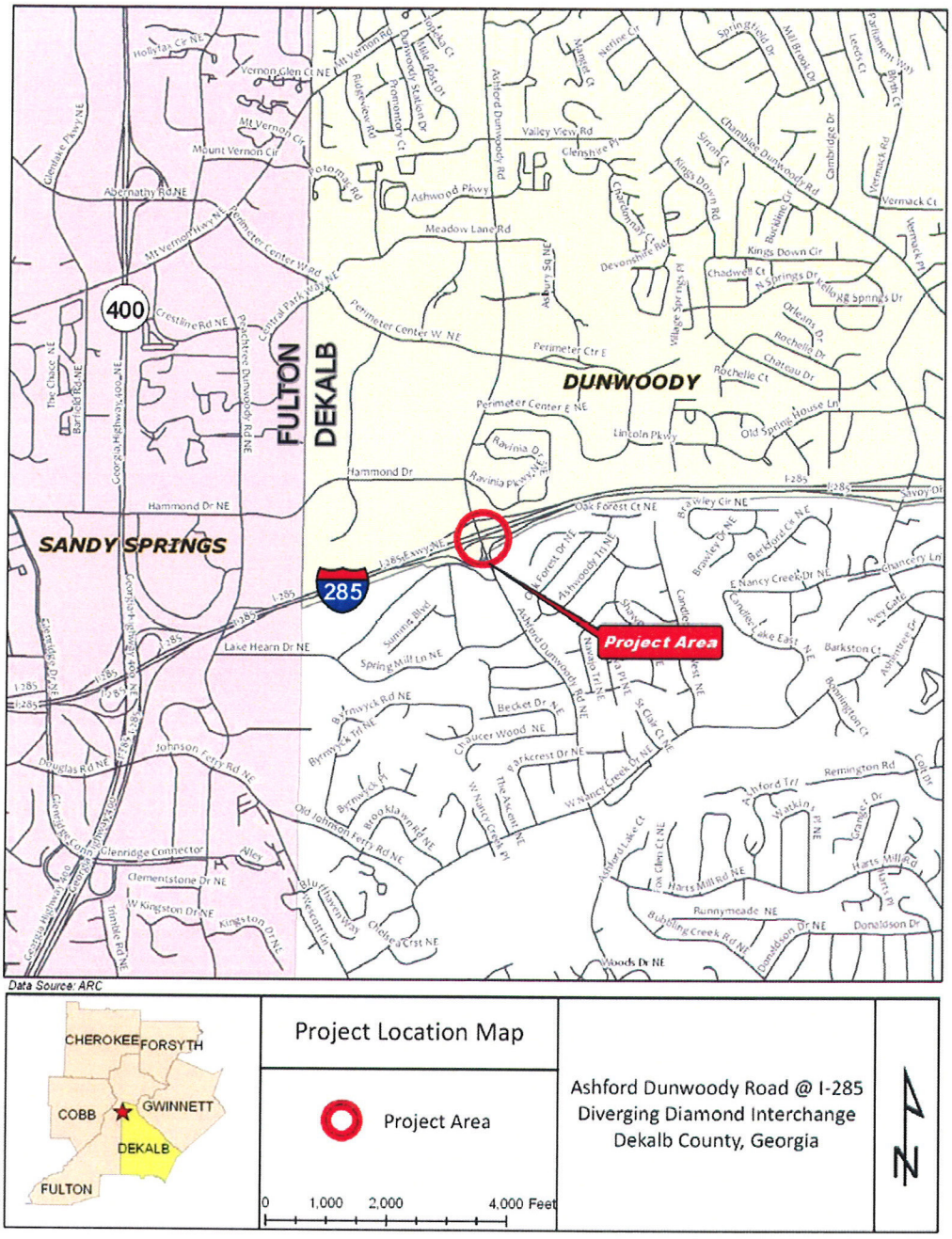
Analysis of future conditions includes a comparison of operational impacts with and without modification to this interchange. The conclusions include the impact to the existing interstate facility and financial feasibility measures based on No Build vs. Build conditions.

Study Area

The study area, shown in Figure 1 was established based on a traffic operations study conducted for the Perimeter Community Improvement Districts (PCIDs).

The interchange is located in Dekalb County, with Ashford Dunwoody Road (CR 1764) within the corporate city limits of Dunwoody. The interchange is located at milepost 0.59 on I-285 (SR 407) serves an urban area with numerous commercial and residential traffic generators. The nearest interchanges consist of Chamblee Dunwoody Road (CR 5156) lcoated approximately 1.5 miles to the east and Peachtree Dunwoody Road (CR 2069) located approximately 0.85 miles to the west. In the immediate vicinity of the Ashford Dunwoody Road interchange are numerous commercial office buildings and retail facilities such as Perimeter Mall, a major regional traffic draw.

Figure 1: Study Area Map



Project Background

Ashford Dunwoody Road (CR 1764) is a highly congested arterial corridor that services numerous residential and commercial areas. It is a primary access point from I-285 into the City of Dunwoody, the Perimeter Mall area and the City of Chamblee. The Perimeter Community Improvement Districts (PCIDs) recognized a need to explore opportunities for interim improvements to the area that might benefit congestion along Ashford Dunwoody Road.

A consultant was hired to analyze several alternatives for congestion relief. The best alternative is a diverging diamond at the interchange of I-285 (SR 407). The PCIDs, in cooperation with DeKalb County presented their proposed relief solution to the Georgia Department of Transportation (GDOT) in the fall of 2009. GDOT provisionally agreed that the project was viable and constructible in a timeframe well in advance of other potential interchange reconstruction projects.

Analysis History

The I-285 at Ashford Dunwoody Road interchange has been the subject of 20 studies since 1982. Numerous long-term redesign concepts for this interchange have been under discussion or on GDOT drawing boards for almost 15 years and are still on-going. A complete long-term redesign is included in the Regional Transportation Plan (RTP) for Metro Atlanta to 2030 and designated a high priority project providing congestion relief for the region. The projected cost is $172 million. The interchange was scheduled to receive federal funding beginning in the 2007 fiscal year for right-of-way acquisition. However, while an approved concept was developed for this project, it did not advance through environmental approval and final engineering due to funding constraints. A full reconstruction of this interchange is slated to occur by a project that is waiting on the Environmental Impact Statement (EIS) being developed by the *revive285* project, which is seeking to clear the National Environmental Policy Act (NEPA) process for the entire I-285 corridor from Cumberland Place in Cobb County to Chamblee-Tucker Road in DeKalb County. The EIS will not be complete until at least 2011. The project number for the full-reconstruction of this interchange is DK-AR-219A, PI# 714000.

Project Description

The Ashford Dunwoody Road Diverging Diamond Interchange (DDI) project would retain the existing bridge in place. The project would reconstruct the eastbound I-285 off-ramp and eliminate the existing eastbound loop on-ramp. The basic configuration of the interchange would become a standard diamond however additional construction at the Ashford Dunwoody Road/Ramp Termini would be needed to provide the left- and right-turn lanes which are important to a DDI. The north- and south-bound Ashford Dunwoody Road approaches would be slightly widened to accommodate the alignment of the DDI. The existing dedicated lane access from the eastbound I-285 off-ramp to Lake Hearn Drive would be reconstructed in kind. A barrier would be constructed in the center of the bridge to provide positive protection from the opposing lanes of traffic.

Need and Purpose

Quoting from the Project concept report:

> The need for the proposed project is to provide interim relief for the severe congestion at the I-285 (SR 407) Ashford Dunwoody Road (CR 1764) interchange in DeKalb County prior to full reconstruction of the interchange area under project IMNH0-0285-01(388), PI #714000, DeKalb County. It is also intended to improve the safety of the left-turn movements onto the Interstate on-ramps. To address these needs, the project proposes an operational improvement of the existing interchange by converting the partial cloverleaf interchange to a diverging diamond interchange.

FHWA Policy Requirements

The following is an excerpt from the FHWA Access Policy Statement for Additional Interchanges to the Interstate System[1]

> Section 111 of title 23, U.S.C., provides that all agreements between the Secretary and the State highway department for the construction of projects on the Interstate System shall contain a clause providing that the State will not add any points of access to, or exits from, the project in addition to those approved by the Secretary in the plans for such project, without the prior approval of the Secretary. The Secretary has delegated the authority to administer 23 U.S.C. 111 to the Federal Highway Administrator pursuant to 49 CFR 1.48(b) (10). A formal policy statement including guidance for justifying and documenting the need for additional access to the existing sections of the Interstate System was published in the Federal Register on October 22, 1990 (55 FR 42670).
>
> It is in the national interest to maintain the Interstate System to provide the highest level of service in terms of safety and mobility. Adequate control of access is critical to providing such service. Therefore, new or revised access points to the existing Interstate System should meet the following requirements:
>
> 1. *The existing interchanges and/or local roads and streets in the corridor can neither provide the necessary access nor be improved to satisfactorily accommodate the design-year traffic demands while at the same time providing the access intended by the proposal.*
>
> 2. *All reasonable alternatives for design options, location, and transportation system management type improvements (such as ramp metering, mass transit, and HOV facilities) have been assessed and*

[1] Federal Highway Administration. Department of Transportation. "Additional Interchanges to the Interstate System."

provided for if currently justified, or provisions are included for accommodating such facilities if a future need is identified.

3. *The proposed access point does not have a significant adverse impact on the safety and operation of the Interstate facility based on an analysis of current and future traffic. The operational analysis for existing conditions shall, particularly in urbanized areas, include an analysis of sections of Interstate to and including at least the first adjacent existing or proposed interchange on each side. Crossroads and other roads and streets shall be included in the analysis to the extent necessary to assure their ability to collect and distribute traffic to and from the interchange with the new or revised access points..*

4. *The proposed access connects to a public road only and will provide for all traffic movements. Less than "full interchanges" for special purpose access for transit vehicles, for HOV's, or into park and ride lots may be considered on a case-by-case basis. The proposed access will be designed to meet or exceed current standards for Federal-aid projects on the Interstate System.*

5. *The proposal considers and is consistent with local and regional land use and transportation plans. Prior to final approval, all requests for new or revised access must be consistent with the metropolitan and or statewide transportation plan, as appropriate, the applicable provisions of 23 CFR part 450 and transportation conformity requirements of 40 CFR parts 51 and 93.*

6. *In areas where the potential exists for future multiple interchange additions, all requests for new or revised access are supported by a comprehensive Interstate network study with recommendations that address all proposed and desired access within the context of a long-term plan.*

7. *The request for a new or revised access generated by new or expanded development demonstrates appropriate coordination between the development and related or otherwise required transportation system improvements.*

8. *The request for new or revised access contains information relative to the planning requirements and the status of the environmental processing of the proposal.*

This IMR follows the guidelines delineated by the preceding excerpt from FHWA policy for creating new or modifying existing interstate access points.

All requests for new or revised access points on completed interstate highways must be closely coordinated with the planning and environmental processes. The

FHWA approval constitutes a Federal action, and as such, requires that the National Environmental Policy Act (NEPA) be followed. The NEPA procedures will be accomplished as part of the normal project development process and as a condition for the modification approval. This means the final approval of access cannot precede the completion of the NEPA process.

Basis for Approval

The approval request is for an interchange modification of the existing I-285 (SR 407) / Ashford Dunwoody Road (CR 1764) interchange from a partial cloverleaf to a diverging diamond interchange.

This report incorporates all local and regional land use and transportation plans. The future design year traffic (2021) reflects anticipated increases in development and land use along the Ashford Dunwoody Road corridor and additional volume on the Interstate mainline.

This report analyzes without preconditions three cases in order to determine which best meets the project need and purpose. Those conditions are the no-build (base) condition, a standard diamond interchange and a diverging diamond interchange.

COORDINATION WITH PLANNED AREA TRANSPORTATION IMPROVEMENTS

GDOT has listed no projects that will have a direct impact upon the proposed interchange improvements. The Atlanta Regional Commission Transportation Improvement Program (TIP) lists one project in the immediate vicinity, at Lake Hearn Drive south of the interchange on Ashford Dunwoody Road which will require close coordination to avoid construction that would be destroyed when a modified interchange is constructed. This is ARC project number DK-305, PI 0004413 involving a signal upgrade and landscaping at Lake Hearn Drive and Ashford Dunwoody Road.

No other projects will have a direct impact on the proposed interchange modification nor will the proposed modification have an impact on them.

Other Projects in the Area

- Project Number NHS-0001-00(758) and MSL-0003-00(534) Cobb, Fulton and DeKalb Counties. PI Nos. 0001758 and 0003534. *revive285* top end.
- Project Number IMNH0-0285-01(388), PI #714000, DeKalb County, I-285 from SR 400 to N. Shallowford Rd
- Project Number CSNHS-M002-00(967), PI #M002967, DeKalb County, I-285 from CR 1764 (Ashford Dunwoody Rd) to Chamblee Tucker
- Project Number CSSTP-0006-00(883), PI #0006883, DeKalb County, CR 4861/Hammond Drive from Ashford Dunwoody Rd to Fulton County Line
- Project Number MSL00-0004-00(831), PI #0004831, DeKalb County, Perimeter Center Streetscape from Mt. Vernon to Ashford Dunwoody - GRTA
- Project Number MSL00-0004-00(421), PI #0004414, DeKalb County, Ashford Dunwoody Road at Ashford Gables - GRTA
- Project Number CSSTP-0006-00(884), PI #0006884, DeKalb County, Johnson Ferry Rd from Fulton County Line to Ashford Dunwoody Rd
- Project Number STP00-0002-00(410), PI #0002410, DeKalb County, SR 141 from McGraw Drive/MP 3.0 to N Peachtree Rd/MP 4.8
- Project Number CM000-00TS-00(036), PI #770944, DeKalb County, ATMS/System Optimization Peachtree Industrial Blvd from Peachtree to New Peachtree
- Project Number CSSTP-0008-00(850), PI #0008850, Fulton County, Johnson Ferry/Glenridge from Abernathy-Hammond - See PI# 751420

- Project Number CSSTP-0006-00(267), PI #0006267, Fulton County, Streetscape on Medical Center from I-285 To Glenridge Connector - LCI
- Project Number CM000-0056-01(056), PI #721960, Fulton County, SR 400 ATMS/Communications/Surveillance from S of I-85 to N of I-285
- Project Number OSAP0-M003-00(416), PI #M003416, Fulton County, Fulton County SR 400 between I-85 & SR 120
- Project Number OSAP0-M003-00(417), PI #M003417, Fulton County, Fulton County SR 400 Traffic Flow Data and Incident Detection
- Project Number HPP00-7221-00(400), PI #722140, Fulton County, Northern Atlanta Sub-Area Study
- Project Number STP00-00TS-00(078), PI #870351, Fulton County, Non-Interstate Limited Access Highway Sign Upgrade - SR 400
- Project Number CSNHS-0006-00(398), PI #0006398, Fulton County, SR 400 ATMS Ramp Meters from I-285 To SR 120/Old Milton Parkway
- Project Number MSL00-0001-00(757), PI #0001757, Fulton County, SR 400 from I-285 to McFarland Road/Forsyth County HOV Lanes
- Project Number NH000-0056-01(052), PI #721850, Fulton County, SR 400 from at Hammond/Abernathy to N of Spalding including Collector-Distributor System
- Project Number CSSTP-M003-00(833), PI #M003833, Fulton County, SR 9 From CS 327/Sardis Way to I-285
- Project Number STP00-7626-00(060), PI #762606, Fulton County, SR 9/Roswell Rd from Meadowbrook Drive to Long Island Drive
- Project Number STP00-0005-00(910), PI #0005910, Fulton County, Sidewalk on Hammond Drive & Sandy Spring Circle-LCI Project
- Project Number CSTEE-0009-00(058), PI #0009058, Fulton County, SR 9/Roswell Road from Johnson Ferry Road to Abernathy Road
- Project Number CSSTP-0006-00(728), PI #0006728, Fulton County, SR 9 from Johnson Ferry Rd to Abernathy Rd - Streetscapes
- Project Number CSSTP-0006-00(727), PI #0006727, Fulton County, SR 9/Roswell Road from Abernathy Road to Forsyth County Line
- Project Number CSSTP-M003-00(945), PI #M003945, Fulton County, SR 9 from Abernathy Road to Chattahoochee River

- Project Number STP00-9252-00(007), PI #751420, Fulton County, Johnson Ferry/Glenridge from Abernathy-Hammond/Including 1-Way Pair
- Project Number CM000-0000-00(640), PI #0000640, Fulton County, CR 210/River Valley Rd from Riverside Drive to Abernathy Rd
- Project Number STP00-9252-00(006), PI #751300, Fulton & Cobb Counties, Johnson Ferry Rd from Columns Drive to Abernathy & Bridge

ASSESSMENT OF ALL REASONABLE ALTERNATIVES

The Planning Process

The Georgia Department of Transportation and the Federal Highway Administration are committed to a logical and orderly process for the development of concepts and plans. Design excellence is achieved by simultaneously advancing the objectives of safety, mobility, enhancement of the natural environment, and the preservation of community values.

As a part of concept development, the concept team analyzed three (3) separate alternatives at the I-285 / Ashford Dunwoody Road interchange. They analyzed the no-build condition, a standard diamond interchange and a diverging diamond interchange.

During the development of alternatives to alleviate congestion along Ashford Dunwoody Road, several meetings were held with critical local stakeholders to determine if there were any objections to the proposed interchange concept. After being presented with the alternatives, there were no dissenting opinions regarding the proposed interchange concept.

Transportation System Management

There are a number of methods to extend the throughput potential of existing freeways. These methods involve moving preferred vehicles out of congestion thereby smoothing the traffic stream through the rate reduction of vehicles entering a freeway, or by reducing the number of vehicles on the freeway.

Similarly, there are methods for improving congestion and safety along signalized urban arterials. Some of the methods employed are signal coordination and intelligent signal actuation.

Interstate Management

This interchange project does not look at methods for increasing the capacity of the interstate through Transportation System Management. There is no adverse impact on the interstate due to no increased traffic volume moving along the on-ramps. The *revive285* environmental impact statement is examining the possibilities for Transportation System Management on a corridor-wide level. This project will not impede the determinations made by *revive285*.

Ramp Metering

Many metropolitan areas use ramp meters as an effective means to reduce freeway congestion. Smoothing the entry of vehicles onto the freeway reduces the potential for traffic flow breakdown and prevents, or delays, the onset of low-speed congested flow conditions. Ramp meters are already in place on the Ashford Dunwoody Road on-ramps to I-285.

Arterial Management

Along the Ashford Dunwoody Road arterial, there have been recent and ongoing efforts to optimize the signal timing to best service the transportation demand. Extensive improvements have been made already. This project will further optimize traffic signal coordination along the corridor. The signals being reconstructed as a part of the proposed project will be coordinated with the existing signal timing and any necessary changes made along the corridor.

Transit Connectivity

The Metropolitan Atlanta Rapid Transit Authority (MARTA) has a heavy rail station within 0.5 miles of the project limits. An important MARTA bus route runs along Ashford Dunwoody Road from the Sandy Springs station to the Chamblee station. The proposed project will not interfere with the existing transit routing.

Park and Ride Lots

There are no Park and Ride lots located in the vicinity of the Ashford Dunwoody Road and I-285 interchange. There are potential sites in the area, but the project location is deep inside the Atlanta Metropolitan area; within the perimeter served by the MARTA system. Park and Ride usage would likely be low.

If future Park and Ride needs develop they would be coordinated with DeKalb County, the City of Dunwoody and the Perimeter Transportation Coalition.

EXISTING ACCESS CONDITIONS AND ANALYSIS

General Study Area Description

Interstate 285 (SR 407) is a limited access facility running in a circular loop around Atlanta, Georgia. In the project area, it is colloquially referred to as the "Top End Perimeter" and runs generally east-west. I-285 serves as the boundary of the City of Dunwoody to the north of the project. The project is located entirely within DeKalb County and partially within the City of Dunwoody. Approximately 0.6 miles to the west along I-285 is the boundary between DeKalb County and Fulton County. The posted speed limit is 55 MPH.

Ashford Dunwoody Road (CR 1764) is a north/south arterial connecting the City of Chamblee to the south with the City of Dunwoody to the north. It provides access to one of the Atlanta metropolitan areas largest commercial areas as well as servicing residential neighborhoods to the north and south. The posted speed limit is 45 MPH.

Table 1: Historical Traffic Volumes

DeKalb County Traffic Count Station	TC 3376	TC 3378	TC 3585	TC 3586
Year				
2003	222,220	231,310	19,226	39,430
2004	234,640	231,290	21,111	64,640
2005	249,680	239,050	17,120	65,290
2006	251,080	243,880	16,620	50,830
2007	248,950	243,930	17,020	55,290
2008	242,050	239,190	16,330	54,630
Average Annual Growth Rate 2003 to 2008	1.7%	0.7%	-3.2%	6.7%

Source: Georgia Department of Transportation
TC 3376: I-285 west of Ashford Dunwoody Road
TC 3378: I-285 east of Ashford Dunwoody Road
TC 3585: Ashford Dunwoody Road south of I-285
TC 3586: Ashford Dunwoody Road north of I-285

Traffic Volumes

Traffic volumes along I-285 have shown a steady positive growth since 2003. Ashford Dunwoody Road however has shown extensive variability in historic traffic growth. In order to predict traffic volumes that show conservative values for alternative analysis, a project area growth rate of 1.5% was chosen based on the I-285 growth and census tract data. The census has shown a 1.2% population growth rate in this area for the period 2000-2008. The chosen rate of 1.5% per year is considered to be reasonable and conservative in this case

This growth rate was used to develop existing 2009 average daily traffic (ADT) volumes and hourly peak hour volumes to the build year (2011) and design year (2021).

Traffic counts were conducted in May and August of 2009 in the project area in order to build traffic diagrams. The diagrams are displayed in the Appendix of the Concept Report.

Collision History

Safety is a critical aspect of the proposed project. Implementation of this interchange modification must reduce collisions in order to meet the project's need and purpose. The diverging diamond alternative will eliminate most angle-type collisions and relief of congestion will reduce the number of rear-end collisions being experienced on Ashford Dunwoody Road. A standard diamond will help relieve congestion and therefore reduce rear-end collisions but will have a negative effect on angle collisions by adding back in another set of left-turn conflict points at the eastbound ramp terminal.

An inventory of available collision data over the most recent three-year period, from 2005 to 2007, is provided in Table 2. The table lists the total number of crashes and types of collision that occurred on Ashford Dunwoody Road within the project study area. The collision and injury rates for Ashford Dunwoody Road were calculated and are shown beside the statewide averages in Table 3. The collision analysis rates are in collisions or injuries per 100 million vehicle miles of travel. There were no recorded fatal collisions in the study area between 2005 and 2007.

The analysis shows that Ashford Dunwoody Road has operated at higher collision and injury rates compared to the average rates for similar facilities statewide during the three-year analysis period.

Table 2: Collisions by Type

Total No: of Collisions	Types of Collision (2005 - 2008)				
	Angle	Rear-End	Head On	Sideswipe	Hit an Object
1125	17%	58%	1%	21%	3%

Source: Moreland Altobelli Associates, Inc., Georgia Department of Transportation

Table 3: Collision Rates

Ashford Dunwoody Road from Perimeter Summit Pkwy to Perimeter Center North Urban Minor Arterial (1.11 miles)						
Year	No. of Collisions	No. of Injuries	Collision Rate [1]	Statewide Average Collision Rate [1]	Injury Rate [1,2]	Statewide Average Injury Rate [1,2]
2005	245	39	926	*534*	147	*135*
2006	261	32	1268	*531*	155	*132*
2007	279	36	1245	*514*	161	*126*
2008	340	47	1536	*471*	212	*166*

[1] *Rates are measured in collisions or injuries per 100 million vehicle miles of travel*
[2] *No fatal collisions were reported during the study period*
Source: Moreland Altobelli Associates, Inc., Georgia Department of Transportation

Ashford Dunwoody Road had 1,125collisions from 2005 to 2007. Fifty-eight percent (58%) of the total collisions were Rear-End crashes, which are an indicator of traffic congestion. Twenty-one percent (21%) of the total collisions were Sideswipe collisions indicating insufficient spacing between the vehicles leading to improper maneuvers, such as misjudging the distance between vehicles when changing lanes or overtaking a vehicle. Seventeen percent (17%) of the total collisions were angle collisions. The other two types of collisions, namely Head-On and Hit an Object, were not a significant factor.

Table 4: Interstate Collision Rates

I-285 (SR 407) in the vicinity of Ashford Dunwoody Road Urban Principle Interstate (1.08 miles)								
Year	No. of Collisions	No. of Injuries	Collision Rate [1]	Statewide Average Collision Rate [1]	Injury Rate [1]	Statewide Average Injury Rate [1]	Fatality Rate1,[2]	Statewide Fatality Rate1,[2]
2006	350	61	354	*200*	62	*69*	1.01	0.73
2007	293	71	299	*186*	72	*43*	0	0.52
2008	273	76	286	*187*	80	*63*	0	0.56

[1] *Rates are measured in collisions or injuries per 100 million vehicle miles of travel*
[2] *Only one fatal collision was recorded during the study period*
Source: Moreland Altobelli Associates, Inc., Georgia Department of Transportation

Interstate 285 has collision rates that are in excess of the statewide average all three available[2] study years. The injury rate exceeds the statewide average in 2007 and 2008 and the fatality rate is exceeded by the one fatal collision that occurred in 2006.

Of the 916 collisions that occurred over three years in the study area, only 46 occurred at the ramp merge and diverge points. This indicates that the merge and diverge locations are operating relatively free of congestion.

[2] Mainline interstate crash data was added after 2005 data became non-available. That is why 2005 data is presented for Ashford Dunwoody road but not the interstate

FUTURE ACCESS CONDITIONS AND ANALYSIS

Alternatives Analysis

The interchange of I-285 and Ashford Dunwoody Road was analyzed under three conditions: existing (no build), a standard diamond and a diverging diamond interchange.

Proposed Lane Configuration

Each interchange would have different lane configurations across the I-285 / Ashford Dunwoody Road bridge and at the ramp terminals.

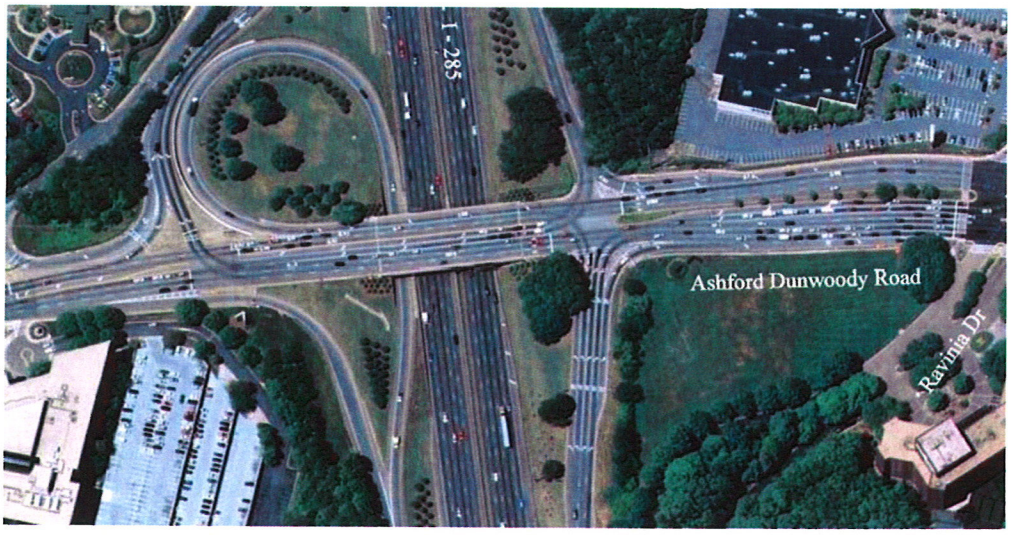
Existing Condition (No Build):
The Ashford Dunwoody Road bridge over I-285 consists of five (5) through lanes, three (3) northbound and two(2) southbound. Northbound there are two left-turn lanes for traffic to turn onto the I-285 westbound on-ramp. Southbound there is one (1) dedicated right-turn lane that moves traffic onto the loop ramp for I-285 eastbound.

The I-285 eastbound off-ramp consists of two (2) lanes which widen to four (4) at the terminal: two (2) left turn lanes onto northbound Ashford Dunwoody Road, one (1) southbound, and one (1) lane which is a dedicated right turn lane into Lake Hearn Drive.

The I-285 westbound off-ramp consists of two (2) lanes which widen to five (5) at the terminal: three (3) left-turn lanes onto southbound Ashford Dunwoody Road and two (2) right turn lanes onto northbound.

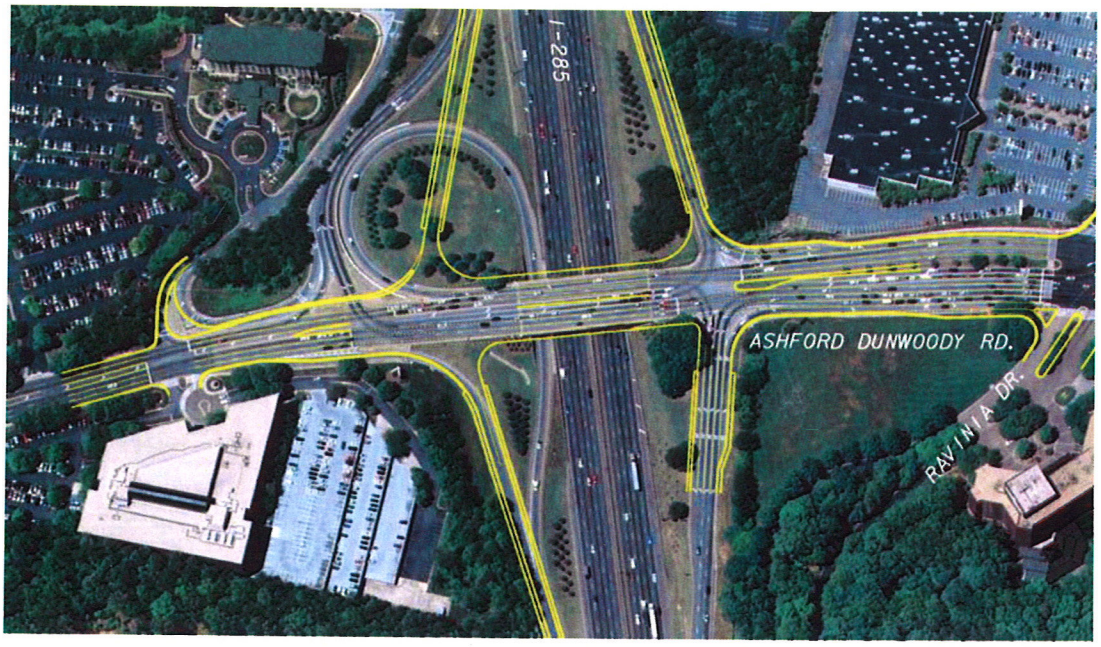
Southbound Ashford Dunwoody Road, approaching the interchange, has a dedicated right turn lane and an additional right turn bay for traffic turning onto the westbound I-285 on-ramp.

Figure 2: Existing Interchange Layout



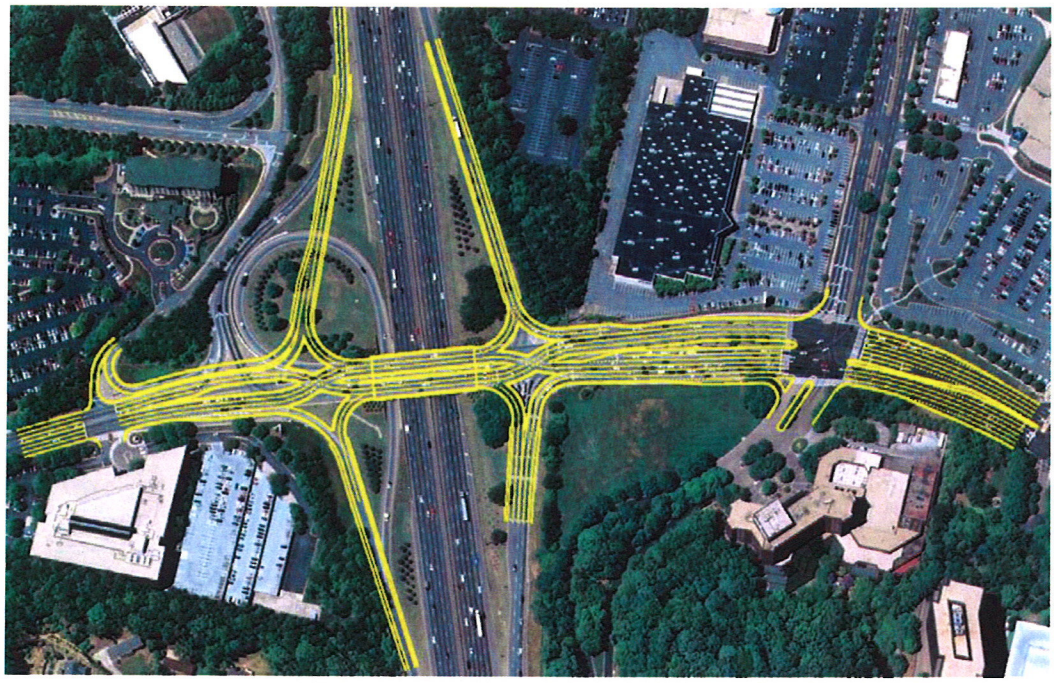
Diamond Interchange (Also referred to as Standard Diamond):
The standard diamond interchange would consist of the same lane configuration as the existing condition with the exception that a dual left turn lane would be installed southbound on the Ashford Dunwoody Road bridge across I-285. The loop ramp for south to eastbound traffic would be removed and the existing off-ramp from eastbound I-285 would be shifted closer to the bridge to allow for a diamond-type signal operation with the eastbound on-ramp.

Figure 3: Diamond Interchange Layout



Diverging Diamond Interchange:
Diverging diamond interchanges are a new concept in the United States. The concept is to cross arterial traffic from the right side of the road to the left at the ramp terminal and allow for unobstructed left-turns onto the interstate on-ramps. The traffic is crossed back over from the left side to the normal right side at the second ramp terminal.

Figure 4: Diverging Diamond Interchange Layout



The diverging diamond interchange consists of six (6) through lanes across the I-285 / Ashford Dunwoody Road bridge with one (1) in each direction being a dedicated left-turn lane onto the on-ramps. The center through lane is a shared left lane which provides for dual left turn operation onto the interstate on-ramps.

The eastbound off-ramp approach to Ashford Dunwoody Road would remain the same configuration as the existing condition.

The westbound off-ramp approach to Ashford Dunwoody Road would consist of four (4) lanes at the terminal, with two (2) being left turns and two (2) being right turns.

Projected Traffic Volumes

The projected design year traffic volumes were developed by the project design team and are shown in the Appendix of the Concept Report.

The 2021 Average Daily Traffic (ADT) volumes projected on Ashford Dunwoody Road across the I-285 Bridge 62,590 vehicles per day. The ADT between the northern ramp terminal and Hammond Drive is higher at 83,100 vehicles per day.

The 2021 Design Hour Volumes (DHV) showing the peak hour volumes along Ashford Dunwoody Road are shown in the Appendix of the Concept Report. The projected heaviest hourly turning-movement volumes are the westbound to northbound ramp turning movement with a volume of 2,360 vehicles per hour in

the AM peak hour. The next heaviest movement is the southbound to westbound turning movement onto the westbound on-ramp. That volume is projected to be 2,050 vehicles per hour during the PM peak hour.

Difference Between No Build and Build Traffic

The fundamental concept of this project and an important factor in acquiring approval for an interchange modification is to show no adverse impact on the Interstate. When the traffic diagrams were being developed, it was recognized that the on-ramps to I-285 are saturated during the peak conditions. No additional traffic is projected to be entering the interstate due to this saturation. This means that turning movements on and off the ramps, both to and from Ashford Dunwoody Road, are similar in all cases, build and no build.

The existing (no build) condition, diamond interchange and the diverging diamond interchange have the same fundamental traffic turning movements volumes, they are just rerouted to the various different directions that the interchange configurations permit. This is better explained by showing that the 2021 southbound loop on-ramp AM turning volume (580 vehicles) which would be making a right turn off of Ashford Dunwoody Road instead makes a left turn in both the diverging and standard diamond interchanges. The destination (eastbound I-285) and volume (580 vehicles) do not change, merely the method of approaching the interstate. This theme is repeated throughout the traffic diagrams. Furthermore, outside of the immediate interchange area, all traffic volumes are identical for Ashford Dunwoody Road and the various side streets.

Future Operating Conditions

There were two primary methods of evaluating traffic conditions for the interchange modification alternatives: capacity analysis based on the Highway Capacity Manual (HCM) and CORSIM.

The HCM[3] is the industry standard for the evaluation of traffic operations. This manual provides a basis for establishing the lane configurations needed to satisfy projected travel demand. The interchange and cross-street intersections were evaluated using a descriptive measure called Level of Service (LOS). This measure evaluates an intersection's operational characteristics based on its peak hour volume, signal timing and typical section.

However, the HCM does not provide methodology for the analysis of a Diverging Diamond Interchange at the ramp terminal signals.[4] These signals are the critical

[3] *2000 Highway Capacity Manual, 4th Edition*

[4] The fundamental difference between a diamond interchange and a diverging diamond interchange is the treatment of left turns. This is reflected in the signal phasing of the ramp terminals. A diamond interchange has two signals operating as three-phase. A diverging diamond interchange has two signals operating as *two*-phase. The HCM does have a methodology for including opposing turns and their intersection control delay into a compiled whole without analyzing three-phase signal operation, in which case the operation of the signal will be identical to the standard diamond interchange. Other methods were called for.

points of analysis for comparison of the Alternatives. For evaluating and comparing these roadway points, CORSIM was used. CORSIM is a microsimulation model that uses stochastic (random) vehicle entries into the modeled network in order to evaluate as accurately as possible what experience real drivers would encounter if they were driving through the modeled network.

The HCM and CORSIM do not provide results that can be compared under synonymous conditions. For that reason, there are some duplications in the analysis presented below. The no-build condition is compared to the standard diamond at all intersections and on the freeway and freeway ramps. Likewise, the HCM is used to compare those operational characteristics of the diverging diamond interchange that are subject to analysis. This includes the freeway, the freeway ramps and the side streets with more conventional signals. CORSIM is used to provide system-wide comparisons between the no-build, standard diamond and diverging diamond interchanges.

HCM Analysis - Basic Freeway Sections

The existing freeway section LOS analysis shows that I-285 is operating at a moderate to failing LOS (C to F) in the project vicinity. The worst LOS is F during the AM peak hour westbound approaching Ashford Dunwoody Road. In the build year, the LOS will decrease so that more LOS E will be prevalent, mainly at the AM westbound departure from Ashford Dunwoody Road and the PM eastbound approach to Ashford Dunwoody Road. By the design year the freeway levels of service will be mainly LOS E and F on all approaches during both the AM and PM peak hours. The sole exception will be the eastbound AM departure from Ashford Dunwoody Road which will remain at LOS C.

Freeway section LOS would not be affected by the any interchange modification at Ashford Dunwoody Road. These LOSs are both for Build and No-Build conditions. The ramp intersections and lane configurations at the interstate would not be altered.

Table 5: Basic Freeway Sections Level of Service

	2009				2011				2021			
	AM		PM		AM		PM		AM		PM	
I-285 EB Between:	**LOS**	**	**LOS**	**	**LOS**	**	**LOS**	**	**LOS**	**	**LOS**	**
North Peachtree Road & Ashford Dunwoody Road	C	21.0	D	33.3	C	21.6	E	35.3	C	25.6	F	*
Ashford Dunwoody Road & Peachtree Dunwoody Road	D	27.0	D	31.1	D	28.1	D	32.7	E	35.9	F	*
I-285 WB Between:												
North Peachtree Road & Ashford Dunwoody Road	F	*	D	27.3	F	*	D	28.5	F	*	E	36.7
Ashford Dunwoody Road & Peachtree Dunwoody Road	E	37.4	D	33.1	E	40.0	E	35.0	F	*	F	*

* Highway Capacity Software returns a density of "undefined" beyond 45.0. This is breakdown in the traffic stream.
** The Measure for freeways LOS is density in passenger cars per mile per lane (pc/mi/ln)
Source: Moreland Altobelli Associates, Inc.

HCM Analysis - Freeway Weaving & Ramp Merge/Diverge Analysis

By definition from the Highway Capacity Manual, a weaving segment does not exist without an auxiliary lane between two adjacent ramps. No weaving segments were analyzed on this Project.

Levels of service in merge/diverge areas are defined in terms of density in passenger cars per mile per lane (pc/mi/ln) for all cases of stable operations, LOS A through E. Level of Service F exists when the demand exceeds the capacity of upstream and downstream freeway sections or the capacity of an off-ramp. There are several analysis conditions on this project where the ramp is LOS F due to the freeway capacity being exceeded.

The interstate ramp analysis shows that in the existing year, the Ashford Dunwoody Road ramps are already showing failing levels of service with LOS F westbound in the AM and eastbound in the PM. This is mainly due to the high volume of traffic on the interstate itself.

As with the basic freeway sections, there is no difference between the Build and No-Build condition for these merge/diverge analyses. No alterations of the ramps junctions with the Interstate are proposed as a part of the interchange modification.

Table 6: Ramp Merge/Diverge Level of Service

	2009				2011				2021			
	AM		PM		AM		PM		AM		PM	
I-285 Ramps at:	LOS	**	LOS	**	LOS	**	LOS	**	LOS	**	LOS	**
Eastbound Off-ramp	D	28.2	F	*	F	*	F	*	F	*	F	*
Eastbound On-ramp	C	20.5	F	*	C	23.5	F	*	C	23.7	F	*
Westbound Off-ramp	F	*	B	19.0	F	*	B	19.8	F	*	F	*
Westbound On-ramp	F	*	F	*	F	*	F	*	F	*	F	*

* Highway Capacity Software returns a density of "undefined" beyond 45.0. LOS F is also determined by the upstream Freeway capacity. If either the Ramp or the Freeway are in excess of 45 pc/mi/ln than the ramp is LOS F. This is breakdown in the traffic stream.
** The Measure for ramp LOS is density in passenger cars per mile per lane (pc/mi/ln)
Source: Moreland Altobelli Associates, Inc.

HCM Analysis - Signalized Intersections

The ramp terminals at Ashford Dunwoody Road and the signalized intersections within the project study area were analyzed using highway capacity manual methods. The following tables list the result of these analyses. A traffic signal optimization software package (Synchro) was utilized to run HCM methods for signal operation analysis.

Note that there are no results listed in the columns of Table 7 for eastbound and westbound ramps under the diverging diamond interchange (See the CORSIM section for a network analysis including the DDI). This is due to the fundamental methodologies of the HCM being unsuitable for analyzing a DDI ramp terminal signal. The best comparisons are by microsimulation software, in this case CORSIM. The HCM results for the diamond interchange are presented as a method of comparing the standard diamond with the no build. It is also a method of demonstrating that using HCM methodologies, there is no effect on any of the side street signals, based on the project traffic. The comparison of the standard diamond, no build and diverging diamond are covered in the CORSIM section of this document.

Table 8 and Table 9 show that the diamond interchange configuration would have no effect on the westbound ramp terminals. This is expected as the current (existing) configuration would not be altered. The eastbound ramps would be altered from the existing loop ramp to a standard diamond and the HCM analysis shows that it would affect the ramp signal by reducing the signal LOS from C to D in the AM of 2011 and from C to F in the PM. Also, in the design year, the construction of a standard diamond configuration would reduce the LOS of the eastbound ramp terminal from C to D in the AM and from D to F in the PM.

Table 7: Signalized Intersections: No Build

No Build Analysis	2009				2011				2021			
Ashford Dunwoody Road at:	AM		PM		AM		PM		AM		PM	
Perimeter Summit Parkway	B	13.7	F	99.5	C	27.4	F	111.5	D	53.3	F	170.0
Ashford Green	A	4.0	A	8.2	A	4.8	A	9.0	B	10.1	B	19.1
Lake Hearn Drive	A	5.7	A	2.4	A	6.9	A	3.1	A	8.6	A	3.7
Eastbound I-285 Ramp	C	22.3	C	26.8	C	22.4	C	29.8	C	24.5	D	50.1
Westbound I-285 Ramps	F	118.9	D	45.6	F	121.8	D	50.0	F	134.6	F	81.6
Hammond Drive	E	57.0	F	94.0	E	58.7	F	98.9	E	65.1	F	112.5
Ravinia Parkway	B	18.6	D	38.2	B	19.6	D	39.9	C	29.2	E	60.1

Delay is in seconds per vehicle
Source: Moreland Altobelli Associates, Inc.

Table 8: Signalized Intersections: 2011

No Build / Diamond / Diverging Diamond Comparison - 2011												
	No Build				Diamond				Diverging Diamond			
Ashford Dunwoody Road at:	AM		PM		AM		PM		AM		PM	
Perimeter Summit Parkway	C	27.4	F	111.5	C	27.4	F	111.5	C	27.4	F	111.5
Ashford Green	A	4.8	A	9	A	4.8	A	9	A	4.8	A	9
Lake Hearn Drive	A	6.9	A	3.1	A	6.9	A	3.1	A	6.9	A	3.1
Eastbound I-285 Ramp	C	22.4	C	29.8	D	36.5	F	89.4	*	*	*	*
Westbound I-285 Ramp	F	121.8	D	50	F	121.8	D	50	*	*	*	*
Hammond Drive	E	58.7	F	98.9	E	58.7	F	98.9	E	58.7	F	98.9
Ravinia Parkway	B	19.6	D	39.9	B	19.6	D	39.9	B	19.6	D	39.9

* DDI analysis not subject to HCM methodology. See CORSIM analysis.
Delay is in seconds per vehicle
Source: Moreland Altobelli Associates, Inc.

Table 9: Signalized Intersections: 2021

No Build / Diamond / Diverging Diamond Comparison - 2021												
	No Build				Diamond				Diverging Diamond			
Ashford Dunwoody Road at:	AM		PM		AM		PM		AM		PM	
Perimeter Summit Parkway	D	53.3	F	170.0	D	53.3	F	170.0	D	53.3	F	170.0
Ashford Green	B	10.1	B	19.1	B	10.1	B	19.1	B	10.1	B	19.1
Lake Hearn Drive	A	8.6	A	3.7	A	8.6	A	3.7	A	8.6	A	3.7
Eastbound I-285 Ramp	C	24.5	D	50.1	D	54.2	F	133.1	*	*	*	*
Westbound I-285 Ramps	F	134.6	F	81.6	F	134.6	F	81.6	*	*	*	*
Hammond Drive	E	65.1	F	112.5	E	65.1	F	112.5	E	65.1	F	112.5
Ravinia Parkway	C	29.2	E	60.1	C	29.2	E	60.1	C	29.2	E	60.1

* DDI analysis not subject to HCM methodology. See CORSIM analysis.
Delay is in seconds per vehicle
Source: Moreland Altobelli Associates, Inc.

Microsimulation Analysis - CORSIM

The CORSIM microsimulation modeling software was used to compare the three analyzed interchange configurations. These were the no-build, the standard diamond and the diverging diamond. Microsimulation analysis was necessary

because the HCM does not have appropriate signalized intersection methodologies for analyzing a DDI ramp terminal signal.

Table 10 shows the results of the CORSIM model runs. This data is delay over the entire roadway network contained within the model shown in Figure 5 and is measured in hours

Figure 5: CORSIM Network

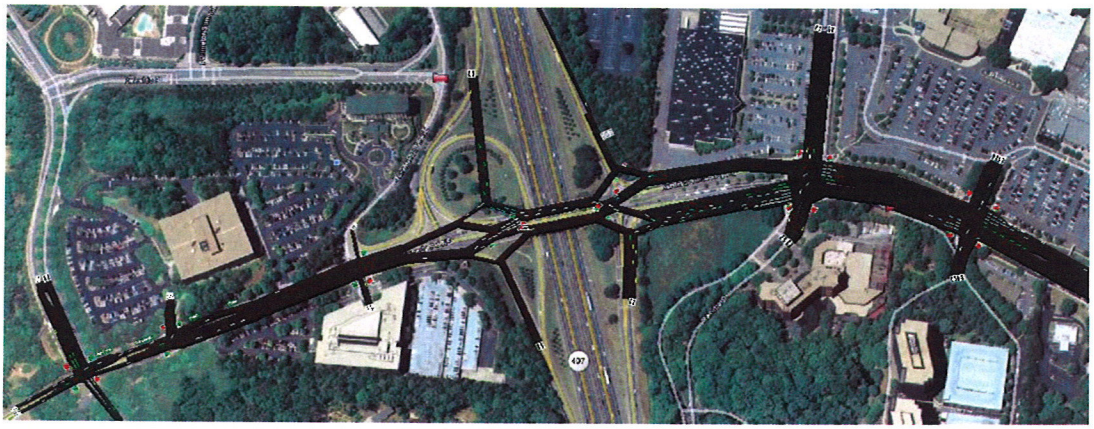


Table 10: CORSIM Network Results

No Build				Diamond				Diverging Diamond			
2011		2021		2011		2021		2011		2021	
AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
0.19	0.99	0.23	1.18	0.20	1.09	0.24	1.04	0.19	0.37	0.21	0.54

Network Delay measured in hours
Source: Moreland Altobelli Associates, Inc.

The CORSIM results show that installing a standard diamond interchange would increase delay in the 2011 AM from 0.19 hours to 0.20 hours. Similarly, in the PM, the delay would increase from 0.99 hours to 1.09. In 2021, under the standard diamond configuration, delay would increase from 0.23 hours to 0.24 in the AM and would fall from 1.18 to 1.04 in the PM. The difference between PM 2011 and PM 2021 can be explained by a large bottleneck forming north of the Ashford Dunwoody Road Interchange which blocks side street traffic from entering. The majority of delay is being generated by the side streets.

Microsimulation Analysis - Interstate Network Analysis

Another important result of the CORSIM analysis is to show that there is no adverse impact to the Interstate mainline. During preliminary concept reviews it was pointed out that the first microsimulation analysis did not include interstate traffic and ramp merge/diverge locations. Additional models were developed which took into account Interstate 285 from North Peachtree Road to Peachtree Dunwoody Road. This is the segment of Interstate which spans Ashford

Dunwoody Road and the immediately adjacent interchanges. Table 11 shows the results of these analyses.

Table 11 and Table 10 differ markedly in what they are analyzing but not in the conclusions they draw: namely that the application of a diverging diamond interchange will result in delay savings to the roadway network and the interstate network under consideration.[5] Another important difference between Table 11 and Table 10 is that Table 11 is measuring delay in vehicle-hours and Table 10 is measuring delay in vehicle-seconds. The amount of traffic on I-285 overwhelms the amount of traffic on Ashford Dunwoody Road during the analysis time periods in Table 11. The primary delay savings shown in Table 11 comes from mainline Interstate traffic while the delay savings shown in Table 10 are derived from traffic on Ashford Dunwoody Road and its side streets.

Table 11: Interstate Network Results

		Travel Delay (veh-hours)	Delay Reduction	Ramp Queuing?
2011 AM	Build	642	52%	None
	No Build	1327		Yes, Both Directions
2021 AM	Build	687	54%	None
	No Build	1489		Yes, Both Directions
2011 PM	Build	667	59%	None
	No Build	1628		None
2021 PM	Build	778	57%	None
	No Build	1825		Yes, Eastbound

Source: Moreland Altobelli Associates, Inc.

Table 11 shows that there will be no adverse effect to the interstate mainline. The model predicts that the diverging diamond interchange will relieve congestion on the interstate mainline by reducing the amount of ramp queuing affecting the mainline traffic. The gains in delay savings are primarily derived from removing ramp queues that were forming onto the interstate. The "Ramp Queuing?" column of Table 11 shows the before/after queuing results of the CORSIM model. By removing the queuing that was impinging on the interstate, the through lanes can flow more efficiently, reducing the total vehicle-hours of delay. Some savings is realized on the ramps, but the majority of the savings is on the mainline of I-285.

[5] An important consideration for microsimulation analysis is the acknowledgement of what is not being analyzed. In the case of the interstate CORSIM analysis, no portions of the interstate beyond Peachtree Dunwoody Road to the west and North Peachtree Road to the east were modeled. No incident modeling was conducted. calibration was based upon ramp volumes and the projected project traffic as displayed in the Concept report.

FINANCIAL ANALYSIS

An important consideration when examining the utility of an interchange modification is financial analysis.

The tool for comparing project costs and expected benefits is the benefit/cost ratio. For this analysis, the benefit/cost ratio compares the costs associated with construction with the benefits derived from the expected reductions in collisions and delay.

Procedures for Developing Benefits

Congestion Benefits

Congestion benefits are calculated by including the delay savings of passenger vehicles and heavy trucks combined with their value-of-time per hour. Added into this is the value of fuel savings due to the delay reduction.

The values[6] used in this analysis were:

- $13.75 per passenger vehicle-hour
- $72.65 per heavy truck-hour
- 18.36 miles per gallon fuel usage
- $2.30 per gallon fuel cost

Delay savings is derived directly from the CORSIM model runs in a comparison between the No Build alternative and the Diamond and Diverging Diamond alternative.

Safety Benefits

To supplement the congestion benefit, safety the expected safety benefit was added to each alternative. Safety benefits were derived from expected collision reduction due to certain improvements combined with a value for fatal, injury or property damage-only collisions.

The values[7] used in this analysis were:

- $300,000 per injury
- $12,000 per property damage collision

Diamond Interchange

Construction of a diamond interchange would provide congestion relief along Ashford Dunwoody Road. At the rate projected (Delay reduction of 58 vehicle-hours) this would reduce rear-end type crashes by approximately 4%[8]. This is approximately 21 collisions with a projected benefit of $252,000 over three years.

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[6] Values based on FHWA recommendations

[7] The collision cost values used in this analysis are based on the FHWA recommendation "Motor Vehicle Accident Costs" with modifications. The modifications are intended to make the analysis more conservative by using values lower than the recommendations. For injury collisions, the reduction is 7.5% and for property damage collisions, the reduction is 40%. Furthermore, these values are based on 1994 dollars and not adjusted for inflation.

[8] Based on the draft highway safety manual

Diverging Diamond Interchange
Construction of the diverging diamond interchange would reduce the number of angle collisions by removing the left-turn phase from the signals at the I-285 ramps. This would eliminate 7 injury angle and head-on collisions and 27 injury and head-on PDO collisions with a projected benefit of $2,709,120 over three years at $300,000 per injury collision and $12,000 per PDO. Congestion relief along Ashford Dunwoody Road at the rate projected (Delay reduction of 80 vehicle-hours) would reduce rear-end type crashes by approximately 5%[9]. This is approximately 23 collisions with a projected benefit of $276,000 over three years.

Benefit Cost

Table 13 shows the ratio of the expected project benefit to cost for the diverging diamond interchange and the standard diamond interchange. The ratios are different due to the necessity of replacing the interchange bridge if the standard diamond is constructed, as well as a reduction in expected benefit if the left-turn angle collisions are not eliminated.

Benefit Cost ratios of greater than 1.0 are considered justification for authorizing a project's construction. The diverging diamond interchange shows a benefit cost ratio of 1.05 and would be of benefit to the area.

Table 12: Estimated Project Costs

Project Costs	Right of Way	Construction	Contingencies	Total
Diamond Interchange	$ 2,400,000	$ 9,963,335	$ 2,472,667	$14,836,002
Diverging Diamond Interchange	$ 1,308,480	$ 4,206,335	$ 1,102,963	$ 6,617,778

Source: Moreland Altobelli Associates, Inc.

Table 13: Benefit Cost Ratio

Benefit Cost Ratio	Project Costs	Project Benefits	B/C Ratio
Diamond Interchange	$ 14,836,002	$ 3,067,031	0.21
Diverging Diamond Interchange	$ 6,617,778	$ 7,246,757	**1.05**

Source: Moreland Altobelli Associates, Inc.

[9] Based on values from the draft highway safety manual

ENVIRONMENTAL PROCESS

Resource surveys of the Area of Potential Effect are a part of the preparation of the environmental document. These surveys included wetland delineation, threatened and endangered species, aquatic species, invasive pest species, migratory birds, history, archeology, environmental justice, and 4(f) resources.

Ecology
No wetland impacts are projected as a part of this project

Protected Species
No threatened or endangered species are projected to be impacted a s apart of this project.

History
A history survey has been completed. There are no National Register-eligible historic resources.

Archeology
According to the Georgia Archaeological Site File (GASF) there have been 12 previous archaeological surveys within 1-km of the project APE. Three of the previous surveys are adjacent to or within the project APE. These surveys were: 1) a 1988 survey (GASF # 907) for the MARTA north line; 2) a 2005 survey (GASF # 3382) for a signal design project; and 3) a 2001 survey for the improvement of the Ashford Dunwoody Road/I-285 intersection. None of the mentioned 12 surveys reports any archaeological findings

A further survey was conducted and no resources were identified

4(f) Resources
No 4(f) resources were identified.

Community/Environmental Justice
No displacements would occur nor would any grade changes or additional traffic which might lead to noise increases occur. There are no disproportionate adverse impacts to minority or low income populations.

Level of Documentation
A National Environmental Policy Act Categorical Exclusion is anticipated.

Public Involvement
A Public Information Open House will be held.

CONCLUSIONS

The diverging diamond interchange satisfies the need of this project by reducing delay and increasing safety over the no build condition. The standard diamond interchange does not reduce delay and only marginally improves safety through congestion relief

The proposed diverging diamond interchange improvement meets FHWA's requirements for the modification of an existing interchange.

1. *The existing interchanges and/or local roads and streets in the corridor can neither provide the necessary access nor be improved to satisfactorily accommodate the design-year traffic demands while at the same time providing the access intended by the proposal.*

   An analysis of the existing roadway network shows that delay will continue to increase with the growth in commercial and commuter traffic. While an expansion of the Ashford Dunwoody Road corridor with a bridge replacement would reduce delay, it would not meet the project need and purpose by providing congestion relief on an interim basis. Full reconstruction of the interchange is planned for a future project.

2. *All reasonable alternatives for design options, location, and transportation system management type improvements (such as ramp metering, mass transit, and HOV facilities) have been assessed and provided for if currently justified, or provisions are included for accommodating such facilities if a future need is identified.*

   Transportation systems management improvements in the form of ramp meters are already in place and will be unaffected or upgraded as a part of this project. Mass transit and HOV facilities will not be affected by any construction related to this IMR.

3. *The proposed access point does not have a significant adverse impact on the safety and operation of the Interstate facility based on an analysis of current and future traffic. The operational analysis for existing conditions shall, particularly in urbanized areas, include an analysis of sections of Interstate to and including at least the first adjacent existing or proposed interchange on each side. Crossroads and other roads and streets shall be included in the analysis to the extent necessary to assure their ability to collect and distribute traffic to and from the interchange with the new or revised access points.*

   The modified access point will have no effect on the interstate. Traffic volumes at the interstate ramp junctions will remain the same. Downstream and upstream interchanges will be unaffected.

4. *The proposed access connects to a public road only and will provide for all traffic movements. Less than "full interchanges" for special purpose access for transit vehicles, for HOV's, or into park and ride lots may be considered on a case-by-case basis. The proposed access will be designed to meet or exceed current standards for Federal-aid projects on the Interstate System.*

   The proposed access modification will make no alterations to the existing access along I-285 or Ashford Dunwoody Road. All AASHTO guidelines will be met or exceeded during design and no design exceptions will be required.

5. *The proposal considers and is consistent with local and regional land use and transportation plans. Prior to final approval, all requests for new or revised access must be consistent with the metropolitan and or statewide transportation plan, as appropriate, the applicable provisions of 23 CFR part 450 and transportation conformity requirements of 40 CFR parts 51 and 93.*

   The proposed access modification is consistent with the Atlanta Regional Commission's Transportation Improvement Plan.

6. *In areas where the potential exists for future multiple interchange additions, all requests for new or revised access are supported by a comprehensive Interstate network study with recommendations that address all proposed and desired access within the context of a long-term plan.*

   The proposed access modification is consistent with the network plan being investigated by the *revive285* Environmental Impact Statement. As no bridge replacement is required by this proposed modification and no road widening or turn-bay additions are being proposed, the modification is consistent will all long-term plans.

7. *The request for a new or revised access generated by new or expanded development demonstrates appropriate coordination between the development and related or otherwise required transportation system improvements.*

   This interchange access modification request is not being investigated for purposes of new or expanded development. Nevertheless, close coordination with the local Community Improvement District (Perimeter CIDs) has been a key part of this study. All proposed improvements are being coordinated with other ongoing construction and design projects along Ashford Dunwoody Road.

8. *The request for new or revised access contains information relative to the planning requirements and the status of the environmental processing of the proposal.*

   This proposed modification is anticipated to be a Categorical Exclusion. All environmental field work has been completed. No adverse impacts to any ecological, historical, archaeological, 4f or other resource is anticipated.

It is the conclusion of this document that the proposed diverging diamond interchange modification should be approved for the I-285 at Ashford Dunwoody Road interchange.

Moreland Altobelli Associates, Inc.
2211 Beaver Ruin Road, Suite 190
Norcross, Georgia 30071
Phone: 770-263-5945 Fax: 770-263-0166

MEETING MINUTES

Project:	**Ashford Dunwoody Road Diverging Diamond Interchange**
	Project No. n/a **P.I. No. 0009725**
Meeting:	**Combined Initial Concept and Concept Team Meeting**
Location:	**GDOT Conference Room 409, 10:30 AM**
Prepared By:	Bill Ruhsam
Prepared On:	3/25/2010

Meeting Date	3/24/2010
MA Project No.	DPCID003
CC:	

ATTENDEES	ORGANIZATION	PHONE	E-MAIL
Bill Ruhsam	Moreland Altobelli	770 263 5945	bruhsam@maai.net
Marlo Clowers	GDOT - IPD	404 631 1713	mclowers@dot.ga.gov
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John Hays	GDOT - R/W	404 347 0151	jhays@dot.ga.gov
Patrick Allen	GDOT - Traffic Ops	404 635 8138	paallen@dot.ga.gov
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Patrece Keeter	DeKalb County	770 492 5281	pgkeeter@co.dekalb.ga.us
Jun Birnkammer	GDOT - Utilities	404 631 1360	jbirnkammer@dot.ga.gov
Raymond Chandler	GDOT - Utilities	404 631 1356	rchandler@dot.ga.gov
Mike Dover	GDOT - IPD	404 631 1733	mdover@dot.ga.gov
Mindy Roberson	FHWA	404 562 3652	melinda.roberson@fhwa.dot.gov
Russel McMurry	GDOT - Road Design	404 631 1777	rmcmurry@dot.ga.gov
Bret Padgett	Moreland Altobelli	770 263 5945	bpadgett@maai.net
Darryl VanMeter	GDOT - IPD	404 631 1703	dvanmeter@dot.ga.gov

1. The meeting opened with introductions
2. Marlo Clowers described the intent of the meeting. Bill Ruhsam described the project briefly and what a diverging diamond interchange (DDI) is.
3. Marlo Clowers briefly discussed other planned projects in the vicinity of the Ashford Dunwoody DDI project. Bill Ruhsam inquired of the City and the County if there were any other projects on the list besides the Lake Hearn Drive / Ashford Dunwoody project that were being physically affected by the proposed interchange work. No other projects were identified

4. There was a brief discussion about the proposed 10 year design life of the project. The attendees agreed that 10 year traffic design is prudent in this case. FHWA and GDOT agree pending a justification document **[Task 1]**.
5. Many utilities were located during the Perimeter Flyover Bridge project (Perimeter Center Parkway). The flyover bridge was intended to support some or most of the utilities that currently exist on the Ashford Dunwoody / I-285 Bridge. These utilities would be relocated at a future bridge reconstruction. No utility relocations from Ashford Dunwoody to Perimeter Center Parkway are anticipated on this project.
6. Jonathan Cox said that Air Studies are needed and could cause delay.
7. The Benefit/Cost (B/C) analysis was discussed, and whether crash data should be a component of the B/C analysis. Darrell Richardson said that it might be a consideration to remove the crash portion of the benefit from the B/C ratio. No decision was made during the meeting on this topic.
8. Bill Ruhsam anticipates that no additional Right of Way (ROW) will be needed. It was mentioned that overhead signs could require ROW.
9. Cynthia Burney asked about how the project was treating Ramp Meters on the I-285 on-ramps. Bill Ruhsam said that no ramp meter changes were anticipated as the project construction limits end well before the locations of the ramp meter signals and sensors. Bill Ruhsam added that if GDOT had specific requests for ramp meters as a part of the project, they could possibly be added to the construction plans
10. The estimated time to complete Environmental is 5 months.
11. There was significant discussion regarding the typical section on the bridge of I-285. This discussion revolved around the following points:
    a. Pedestrian access path: The concept proposed typical provides a pedestrian path in the median of the bridge on a raised concrete median with a decorative handrail.
    b. Bicycle Accommodations: With the typical section being (out to out) 4' shoulder, 13' lane, 12' lane, 12' lane, 18' median, 12' lane, 12' lane, 13' lane, 4' shoulder, there is not specific accommodation for bicycles. Bill Ruhsam said that bicycles were being accommodated in a Rules of the Road fashion with cyclists sharing a traffic lane with vehicles.
        i. Yvonne Williams asked if there was a dedicated bicycle lane as the Perimeter Community Improvement Districts (PCIDs) were trying to encourage accessibility throughout the PCIDs' area.
        ii. Bill Ruhsam responded that there were no bicycle lane provisions at the moment
        iii. David Purcell asked if we could shrink the lane widths to 11' and perhaps edge into the outside shoulder in order to provide bicycle lanes
        iv. Melinda Roberson pointed out that the new Manual on Uniform Traffic Control Devices provisions for "sharrows" should be examined

c. Safety of Pedestrians: Melinda Roberson, Cynthia Burney and others said that they had reservations about using a decorative metal handrail for the median walkway as it may provide a false sense of security for the pedestrian traffic and provide a crash hazard for vehicles. A suggestion was made for concrete planters as opposed to handrail or fencing.

d. Bill Ruhsam said that the typical section over the bridge has been a point of ongoing discussion and that he would raise the discussion again outside the concept team meeting in order to get agency agreement on the pedestrian treatment and any possible bicycle lanes **[task 2]**

12. Bill Ruhsam said that as a part of the project, the dedicated right turn lane into Ravinia Parkway will be eliminated.

13. Staging of the project was discussed. Bill Ruhsam said that there were two constructability plans for the project, one contingent on closing the Ashford Dunwoody Bridge across I-285 for a weekend and one with no closure. There were no agency objections to bridge closure during staging. A detour proposal will be brought to the Public Information Open House to present to the public. **[task 3]**

14. As a part of the Public Information Campaign, the public should have as much information as possible during the process, especially as this project includes novel traffic patterns.

15. List GDOT as utility owner with Lee James Gordon as the contact.

16. Marlo Clowers said that this concept team meeting can be considered a combination meeting for both the Initial Concept Team Meeting and the Concept Team Meeting

17. Bill Ruhsam said that a Value Engineering Study will not be necessary as the project cost is less than $10 million.

18. There was significant discussion regarding the incorporation of the project into the Transportation Improvement Plan (TIP). At the moment, all phases of project will be for fiscal year 2011. The deadline for incorporation into the next TIP amendment is May 21, 2010 for a June inclusion. Bill Ruhsam is confident that no Conformity Amendment will be required on this project as there is no change in the roadway capacity. This is an operational improvement project

19. Jonathan Cox said that the Air study would be approved about 1 month after the project was incorporated into the TIP.

20. Melinda Roberson said that FHWA would look for the traffic appendix attached to the Concept Report as the necessary interchange modification request. Bill Ruhsam asked if they should be identifying the traffic appendix as something other than an "Interchange Modification Report" in order to avoid confusion. Melinda Roberson said that she didn't care what the name of the document was, as long as it addressed the eight policy points.

21. Regarding the proposed schedule, more time would be needed for ROW, if any is needed. Recommended changing to 12 months for ROW process. [editor: 12 months per follow up post meeting]

22. Bill Ruhsam stated that a Preliminary Field Plan Review request would be made very quickly after the environmental document is approved.
23. Regarding schedule, a worst case letting scenario would be for a June, 2011 letting which places Final Field Plan Review in December 2010.
24. There were typos and pointed out in the concept report. These will be corrected. Additional Utility Partners will be added including City of Dunwoody for fiber optic lines and GDOT for ITS **[task 4]**

The above represents our understanding of the items discussed, in no particular order. Please notify us of any discrepancies or questions as soon as possible.

Ashford Dunwoody Rd at I-285

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Benefit Cost Analysis Work Sheet
CONGESTION Projects

Project Number: N/A
P.I Number: 0009725
County: Dekalb

Ashford Dunwoody Road: Diverging Diamond Interchange

Congestion Benefit = Tb + CMb + Fb

Person Time Savings Benefit (Tb)

	Total Roadway Network
*Db (hrs)	0.001064621
ADT	83,100.00
Tb ($s)	$3,041,156.25

Commercial or Truck Time Savings Benefit (CMb)

	Total Roadway Network
Db (hrs)	0.001064621
% Truck Traffic	1%
ADT	83,100.00
CMb	$160,683.64

Fuel Savings Benefit (Fb)

	Total Roadway Network
ADT	83,100.00
Fb ($s)	$1,059,796.88

Total Safety Benefit	**$2,709,120.00**
Total Congestion Benefit	**$4,261,636.76**
Total Project Cost	**$6,617,778.00**
B/C Ratio	**1.05**

Date 3/11/2010

P.I. Number 0009725 County DEKALB

Project Number n/a

Special Provision, Section 109-Measurement and Payment

FUEL PRICE ADJUSTMENT *(ENGLISH 125% MAX)*

ENTER FPL DIESEL	2.814
ENTER FPM DIESEL	6.332

ENTER FPL UNLEADED	2.647
ENTER FPM UNLEADED	5.95575

http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx

INCREASE ADJUSTMENT
125.00%

INCREASE ADJUSTMENT
125.00%

ROADWAY ITEMS	QUANTITY	DIESEL FACTOR	GALLONS DIESEL	UNLEADED FACTOR	GALLONS UNLEADED	REMARKS
Excavations paid as specified by Sections 205 **(CUBIC YARD)**		0.29		0.15		
Excavations paid as specified by Sections 206 **(CUBIC YARD)**		0.29		0.15		
GAB paid as specified by the ton under Section 310 **(TON)**	5796.000	0.29	1680.84	0.24	1391.04	
Hot Mix Asphalt paid as specified by the ton under Sections 400 **(TON)**		2.90		0.71		
Hot Mix Asphalt paid as specified by the ton under Sections 402 **(TON)**	9269.000	2.90	26880.10	0.71	6580.99	
PCC Pavement paid as specified by the square yard under Section 430 **(SY)**		0.25		0.20		

BRIDGE ITEMS	Quantity	Unit Price	QF/1000	Diesel Factor	Gallons Diesel	Unleaded Factor	Gallons Unleaded	REMARKS
Bridge Excavation (CY) Section 211				8.00		1.50		
Class __Concrete (CY) Section 500				8.00		1.50		
Class __Concrete (CY) Section 500				8.00		1.50		
Class __Concrete (CY) Section 500				8.00		1.50		
Superstru Con Class__(CY) Section 500				8.00		1.50		
Superstru Con Class__(CY) Section 500				8.00		1.50		
Superstru Con Class__(CY) Section 500				8.00		1.50		
Concrete Handrail (LF) Section 500				8.00		1.50		
Concrete Barrier (LF) Section 500				8.00		1.50		

BRIDGE ITEMS	Quantity	Unit Price	QF/1000	Diesel Factor	Gallons Diesel	Unleaded Factor	Gallons Unleaded	REMARKS

Stru Steel Plan Quantity (LB) Section 501				8.00		1.50		
Stru Steel Plan Quantity (LB) Section 501				8.00		1.50		
PSC Beams_____ (LF) Section 507				8.00		1.50		
PSC Beams_____ (LF) Section 507				8.00		1.50		
PSC Beams_____ (LF) Section 507				8.00		1.50		
Stru Reinf Plan Quantity(LB) Section 511				8.00		1.50		
Stru Reinf Plan Quantity(LB) Section 511				8.00		1.50		
Bar Reinf Steel (LB) Section 511				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Drilled Caisson,___ (LF) Section 524				8.00		1.50		
Drilled Caisson,___ (LF) Section 524				8.00		1.50		
Drilled Caisson,___ (LF) Section 524				8.00		1.50		
Pile Encasement,___(LF) Section 547				8.00		1.50		
Pile Encasement,___(LF) Section 547				8.00		1.50		

SUM QF DIESEL=	**28560.94**	**SUM QF UNLEADED=**	**7972.03**

DIESEL PRICE ADJUSTMENT($)	**$92,426.06**
UNLEADED PRICE ADJUSTMENT($)	**$24,267.26**

ASPHALT CEMENT PRICE ADJUSTMENT
(BITUMINOUS TACK COAT 125% MAX)

APPLICABLE TO CONTRACTS/PROJECTS CONTAINING THE 413 SPECIFICATION, SECTION 413.5.01 ADJUSTMENTS ASPHALT PRICE ADJUSTMENT FOR BITUMINOUS TACK COAT

http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx

ENTER APL	494	ENTER APM	1111.5

125.00%	INCREASE ADJUSTMENT

L.I.N.	TYPE	TACK (GALLONS)	TACK (TONS)	REMARKS
413-1000	PG 58-22	4721	20.2772	

TMT = 20.2772

PRICE ADJUSTMENT($)	$12,020.30

400 / 402 ASPHALT CEMENT PRICE ADJUSTMENT 125% MAX

ENTER APL	494	ENTER APM	1111.5

http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx

125.00%	INCREASE ADJUSTMENT

L.I.N. / Spec Number	MIX TYPE	HMA	JMF AC%	AC	REMARKS
402-1811			5.00		
402-3121	25 mm SP	1914	5.00	95.70	
402-3130	12.5 mm SP	2798	5.00	139.90	
402-3192	19 mm SP	4557	5.00	227.85	
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			TMT =	463.45	

PRICE ADJUSTMENT($)	$274,733.16

ASPHALT CEMENT PRICE ADJUSTMENT FOR BITUMINOUS TACK COAT(Surface Treatment 125% MAX)

APPLICABLE TO CONTRACTS CONTAINING THE 413 SPEC. SECTION 413.5.01 ADJUSTMENTS ASPHALT PRICE ADJUSTMENT FOR BITUMINOUS TACK COAT

http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx

ENTER APL [ ] ENTER APM [ ]

MISSING APL OR APM	MISSING APL OR APM

Use this side for Asphalt Emulsion Only

L.I.N.	TYPE	ASPHALT EMULSION (GALLONS)

TMT = [ ]

REMARKS:

Use this side for Asphalt Cement Only

L.I.N.	TYPE	TACK (GALLONS)

TMT = [ ]

REMARKS:

MONTHLY PRICE ADJUSTMENT($)	MISSING APL OR APM

ADJUSTMENT SUMMARY

FUEL PRICE ADJUSTMENT (*ENGLISH 125% MAX)*

DIESEL PRICE ADJUSTMENT($)	$92,426.06
UNLEADED PRICE ADJUSTMENT($)	$24,267.26
ASPHALT CEMENT PRICE ADJUSTMENT (BITUMINOUS TACK COAT 125% MAX)	$12,020.30
400 / 402 ASPHALT CEMENT PRICE ADJUSTMENT 125% MAX	$274,733.16
ASPHALT CEMENT PRICE ADJUSTMENT FOR BITUMINOUS TACK COAT(Surface Treatment 125% MAX)	MISSING APL OR APM

REMARKS:

TOTAL ADJUSTMENTS	$403,446.78

DWM 10/08

Moreland Altobelli Associates, Inc.
2211 Beaver Ruin Rd.
Suite 190
Norcross, Georgia 30071

Moreland Altobelli Associates, Inc.

To: Marlo Clowers

From: Bill Ruhsam

Date: 4/7/2010

Re: PI 0009725, Ashford Dunwoody Road Diverging Diamond Interchange
Justification of a 10 Year Design Life

"The need for the proposed project is to provide interim relief for the severe congestion at the I-285 (SR 407) Ashford Dunwoody Road (CR 1764) interchange in DeKalb County prior to full reconstruction of the interchange area under project IMNH0-0285-01(388), PI #714000, DeKalb County. It is also intended to improve the safety of the left-turn movements onto the Interstate on-ramps. To address these needs, the project proposes an operational improvement of the existing interchange by converting the partial cloverleaf interchange to a diverging diamond interchange."

As envisioned by the Need and Purpose, the Ashford Dunwoody Road diverging diamond interchange is an interim solution that is not intended to service a 20 year design period, as practice normally dictates.

The design of the diverging diamond at Ashford Dunwoody Road will provide delay relief for approximately 10 years before the network is once again at 2011 delay levels.

A comparison of 2021 Build and 2011 No Build LOS and Delay bears this out, within the accuracy of the models.

Highway Capacity Manual Analysis

	2011 No Build				2021 Build			
	AM		PM		AM		PM	
Perimeter Summit Parkway	C	27.4	F	111.5	D	53.3	F	170
Ashford Green	A	4.8	A	9	B	10.1	B	19.1
Lake Hearn Drive	A	6.9	A	3.1	A	8.6	A	3.7
Hammond Drive	E	58.7	F	98.9	E	65.1	F	112.5
Ravinia Parkway	B	19.6	D	39.9	C	29.2	E	60.1

*delay is measured in seconds per vehicle

A further examination of the CORSIM model shows that a ten year design life is being met and exceeded.

CORSIM Analysis

2011 No Build		2021 Build	
AM	**PM**	**AM**	**PM**
699	3559	760	1927

*network delay measured in seconds

The purpose of this project is address an operational bottleneck at an important Atlanta region interchange without precluding the future reconstruction of the area in accordance with plans being developed through *revive285.* We conclude that a 10 year design life is a reasonable goal given the constraints being operated under.

U.S. Department of Transportation
Federal Highway Administration

Georgia Division

61 Forsyth Street SW
Atlanta, Georgia 30303
404-562-3630
404-562-3703
GA.fhwa@dot.gov

September 7, 2010

In Reply Refer To:
HPE-GA

Mr. Vance C. Smith, Jr., Commissioner
Georgia Department of Transportation
One Georgia Center
600 West Peachtree
Atlanta, GA 30308

Dear Mr. Smith:

We have reviewed the Concept Report for the proposed modifications to Ashford Dunwoody Road at I-285, DeKalb County, PI Number 0009725. We approve the concept of the project with the following comments:

- For the IMR, an operations and engineering review was conducted. Based on this review, the proposed modifications are acceptable. If there are no major changes to the proposed design, final approval may be given upon completion of the environmental process and addition of the project to the TIP. This approval is subject to reevaluation if significant changes occur in the final design or if the construction is delayed (as specified in 23 CFR 771.129).

- The Concept Report typical section does not match the typical section as described in the text. Due to safety concerns, FHWA does not concur with the typical section as shown in the Concept Report. FHWA concurs with the typical section as provided in an e-mail from Marlo Clowers to Melinda Roberson on 9/7/2010. A copy of the e-mail is enclosed.

- Page 11. Project CSNHS-M002-00(970) should have been included on the list of other projects in the area

RECOVERY.GOV

Please contact Mindy Roberson at (404) 562-3652, if you have any questions or would like to schedule a meeting to discuss any of these comments.

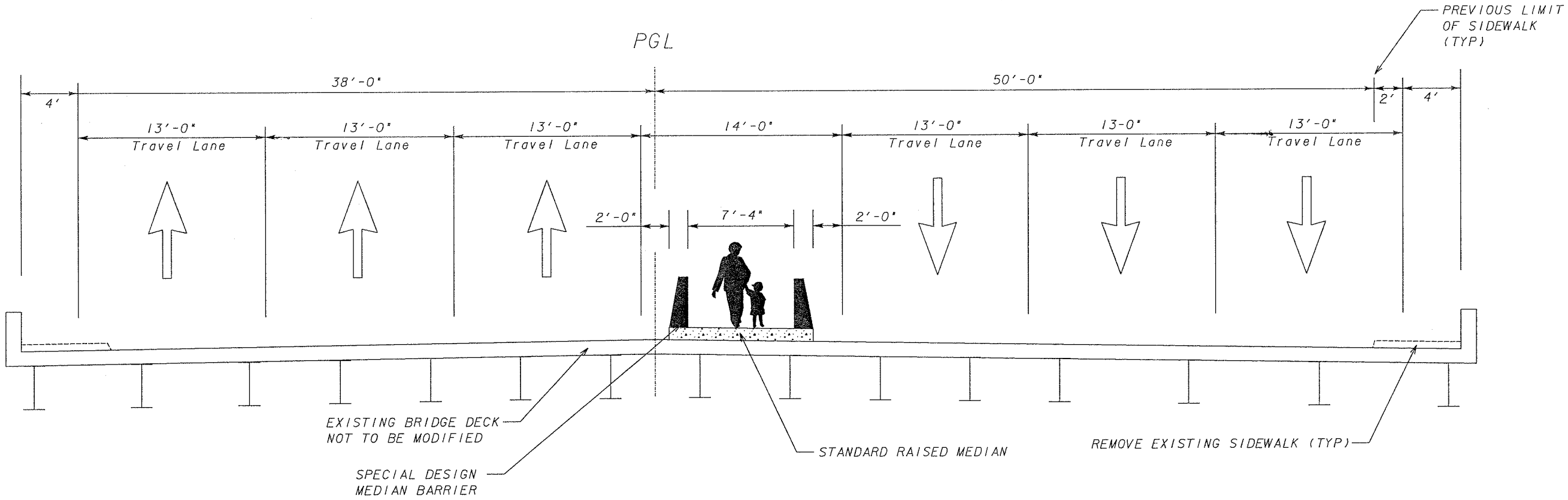
Sincerely,

for Rodney N. Barry, P.E.
Division Administrator

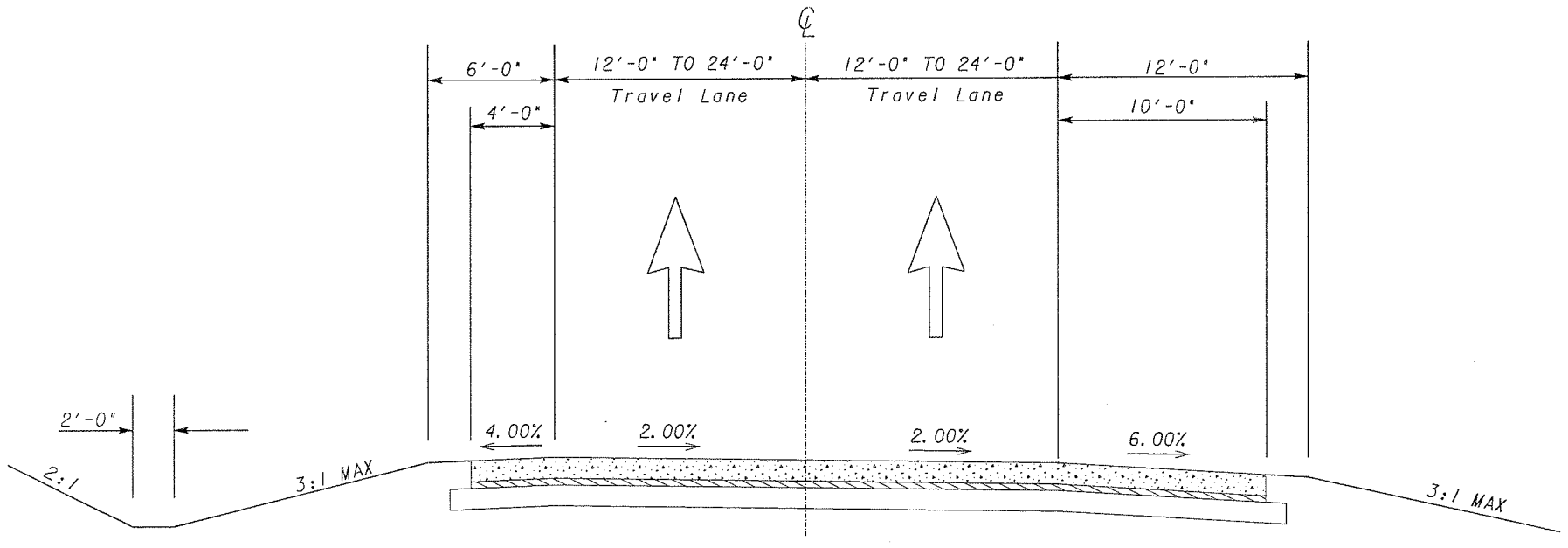
Enclosure

Cc: David Peters, GDOT Location Conceptual Design Group Manager
Marlo Clowers, GDOT Office of Innovative Program Delivery

PROJECT NUMBER	SHEET NO.	TOTAL SHEETS



ASHFORD DUNWOODY BRIDGE TYPICAL SECTION



RAMP TYPICAL SECTION

NOTE: SOME SECTIONS OF RAMPS B, C, & D WILL CONSIST OF MILL AND OVERLAY ONLY

Moreland Altobelli Associates, Inc.
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NOT TO SCALE

REVISION DATES		

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

OFFICE:

TYPICAL SECTIONS

DRAWING No. 5-

1/5/2009 GPLK